THE American Journal OF Gastroenterology

VOL. 30, NO. 3 SEPTEMBER, 1958

CONVENTION NUMBER

Program, 23rd Annual Convention and Course in Postgraduate Gastroenterology—Pages *1-32*

Complete Table of Contents on page 215

Twenty-third Annual Convention
Jung Hotel
New Orleans, La., 19, 20, 21, 22 October 1958

Course in Postgraduate Gastroenterology
Jung Hotel
New Orleans, La., 23, 24, 25 October 1958

Mexico Regional Meeting
Auditorium of the Hospital Central, S.C.O.P.
Mexico, D.F., 27 October 1958

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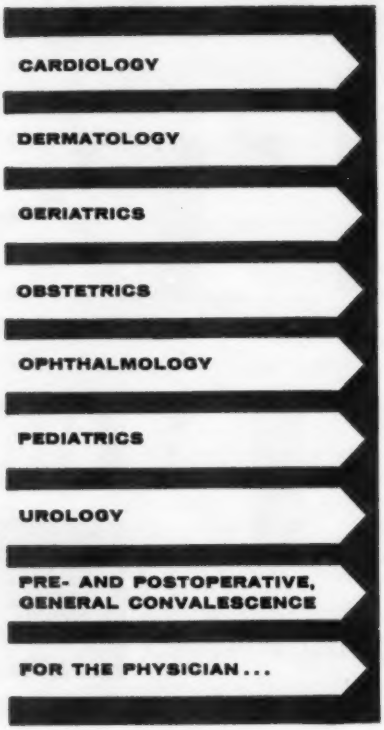

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THE American Journal OF Gastroenterology

(FORMERLY THE REVIEW OF GASTROENTEROLOGY)

The Pioneer Journal of Gastroenterology, Proctology and Allied Subjects in the United States and Canada

contents:

Editorial Board and General Information 216
Panel Discussion on the Management of Massive Gastrointestinal Hemorrhage in Patients With Liver Disease.....NORMAN ZAMCHECK, M.D., CHARLES S. DAVIDSON, M.D., JANE DESFORGES, M.D., J. ENGLEBERT DUNPHY, M.D. and ROBERT LINTON, M.D. 231
Liver Patterns in Biliary Hypercholesteremia
H. EDWARD MACMAHON, M.D. 255
Clinical Aspects of Hemorrhagic Gastritis.....O. M. JANKELSON, M.D. 260
The Effect of Steroids on the Gastrointestinal Tract
SEYMOUR J. GRAY, M.D. 266
The Effects of ACTH and Adrenocortical Steroid Hormones on Human Gastric Secretion.....DAVID A. DREILING, M.D., F.A.C.G., HENRY D. JANOWITZ, M.D. and HAROLD L. ROLBIN, M.D. 269
Gastroscopy.....E. NED SCHULTZ, M.D., EDWARD W. HAUCH, M.D., BALAKRISHNA HEGDE, M.D. and GEORGE K. WHARTON, M.D. F.A.C.G. 280
Carcinoma of the Colon...A. W. ALLEN, M.D. and G. A. DONALDSON, M.D. 287
Intestinal Obstruction.....JOHN J. BYRNE, M.D. 300
Anorectal Infections—Pathogenesis, Clinical Manifestations
GASPAR ANGELO, M.D. 310
Clinical Observations With BepHan Spacetabs
SAMUEL WEISS, M.D., F.A.C.G., JEROME WEISS, M.D., F.A.C.G., BERNARD WEISS, M.D. and RAFAEL B. ESPINAL, M.D. 316
President's Message 331
News Notes 332
Errata 338
Convention Program *1-32*
Abstracts for Gastroenterologists 339
Book Reviews for Gastroenterologists 355

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Index to Advertisers

Abbott Laboratories 224, 225
Ames Co., Inc. 230
Ayerst Laboratories 370, 371
Burton, Parsons & Co. ..... 3rd cover
Coca-Cola Co. 368
Eder Instrument Co. 368
Kremers-Urban Co. 220
Lakeside Laboratories 223
Lilly, Eli, & Co. 361
Maltbie Laboratories Division, Wallace & Tiernan, Inc. 226, 227
Mead Johnson 221, 222
Organon, Inc. ..... 2nd cover
Quaker Oats Co., The 360
Robins, A. H., Co., Inc. 217
Roche Laboratories, Division of Hoffmann-La Roche, Inc. 214
ROR Chemical Co. 362
Rorer, Wm. H., Inc. 367
Sandoz 228
Searle, G. D., & Co. 213
Smith, Kline & French Laboratories 357
Squibb 229
U. S. Vitamin Corp. 358, 359
Upjohn Co., The 363, 364, 365, 366
Wallace Laboratories 218, 219
Warner-Chilcott ..... 4th cover
Winthrop Laboratories 371
Wyeth Laboratories 374

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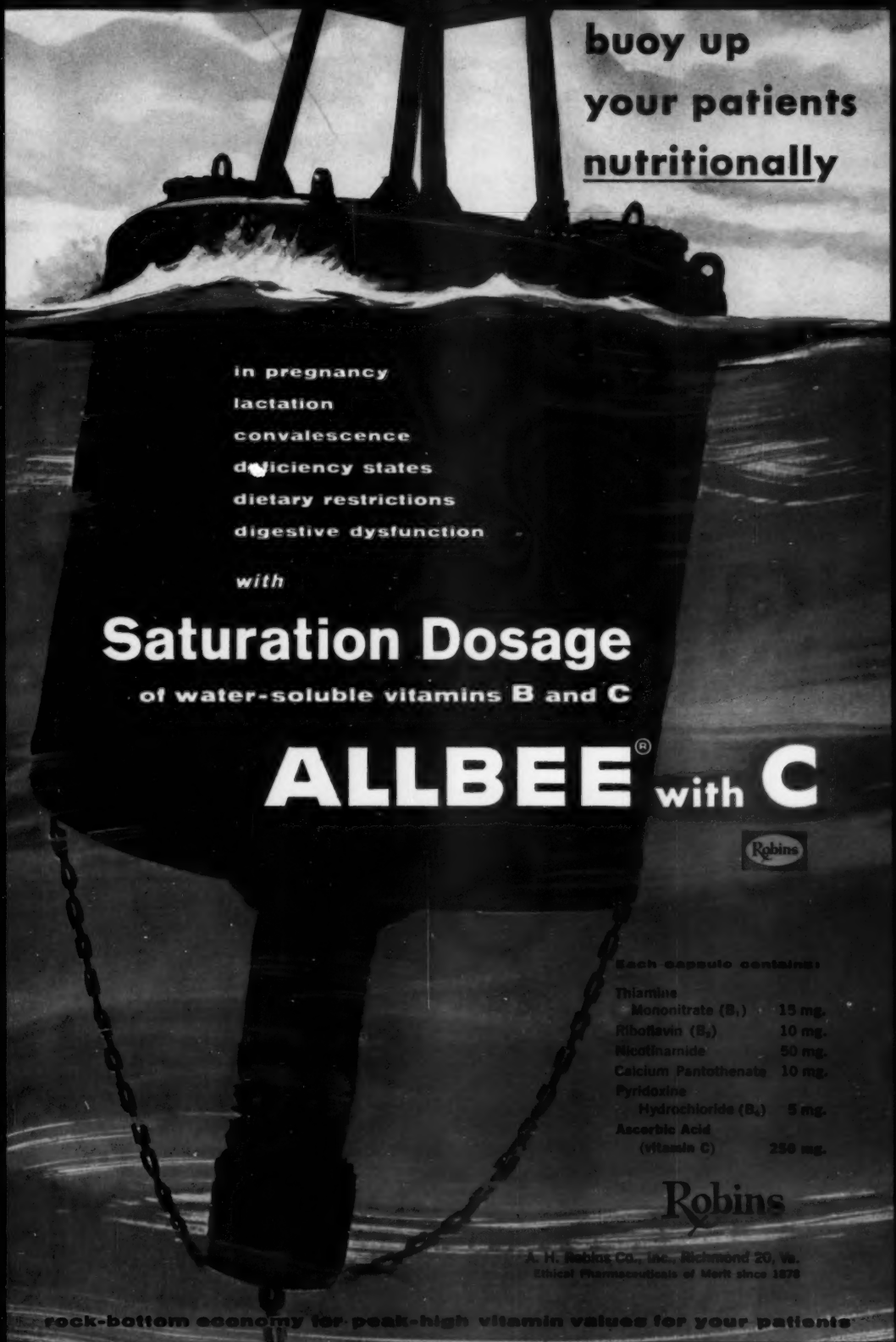
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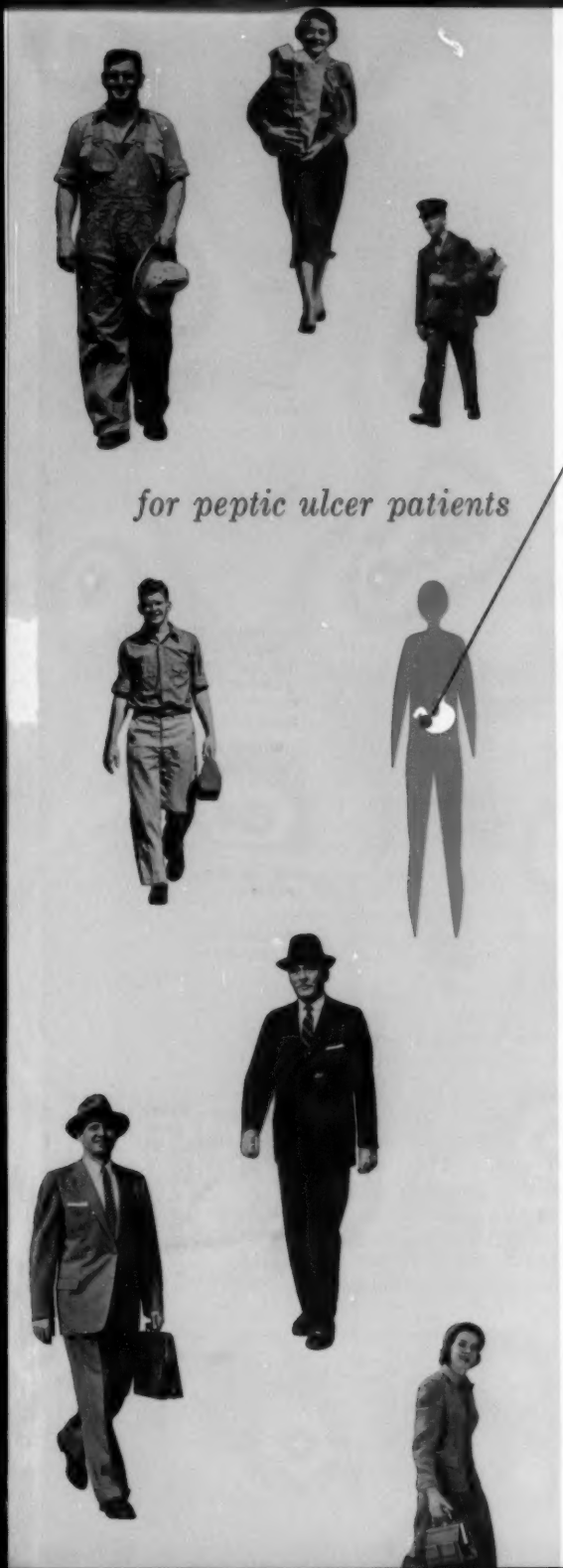

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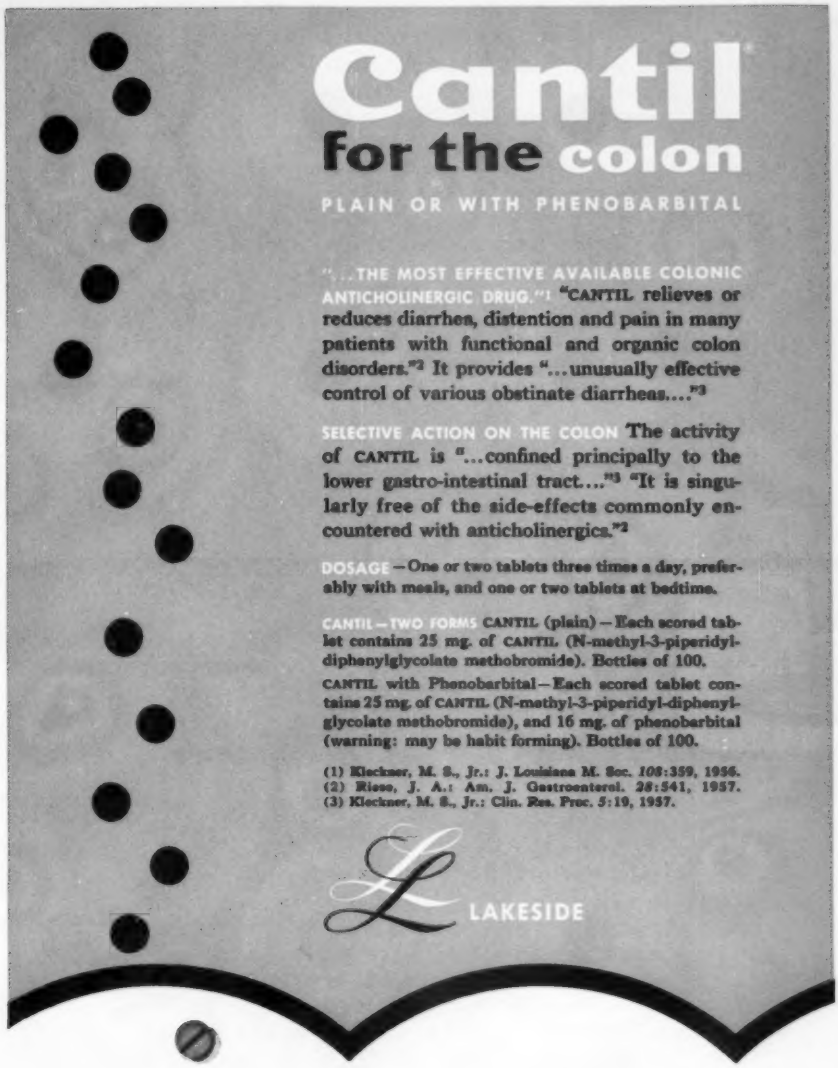
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(1) Kleckner, M. S., Jr.: J. Louisiana M. Soc. 108:359, 1956.
(2) Risso, J. A.: Am. J. Gastroenterol. 28:541, 1957.
(3) Kleckner, M. S., Jr.: Clin. Res. Proc. 5:19, 1957.
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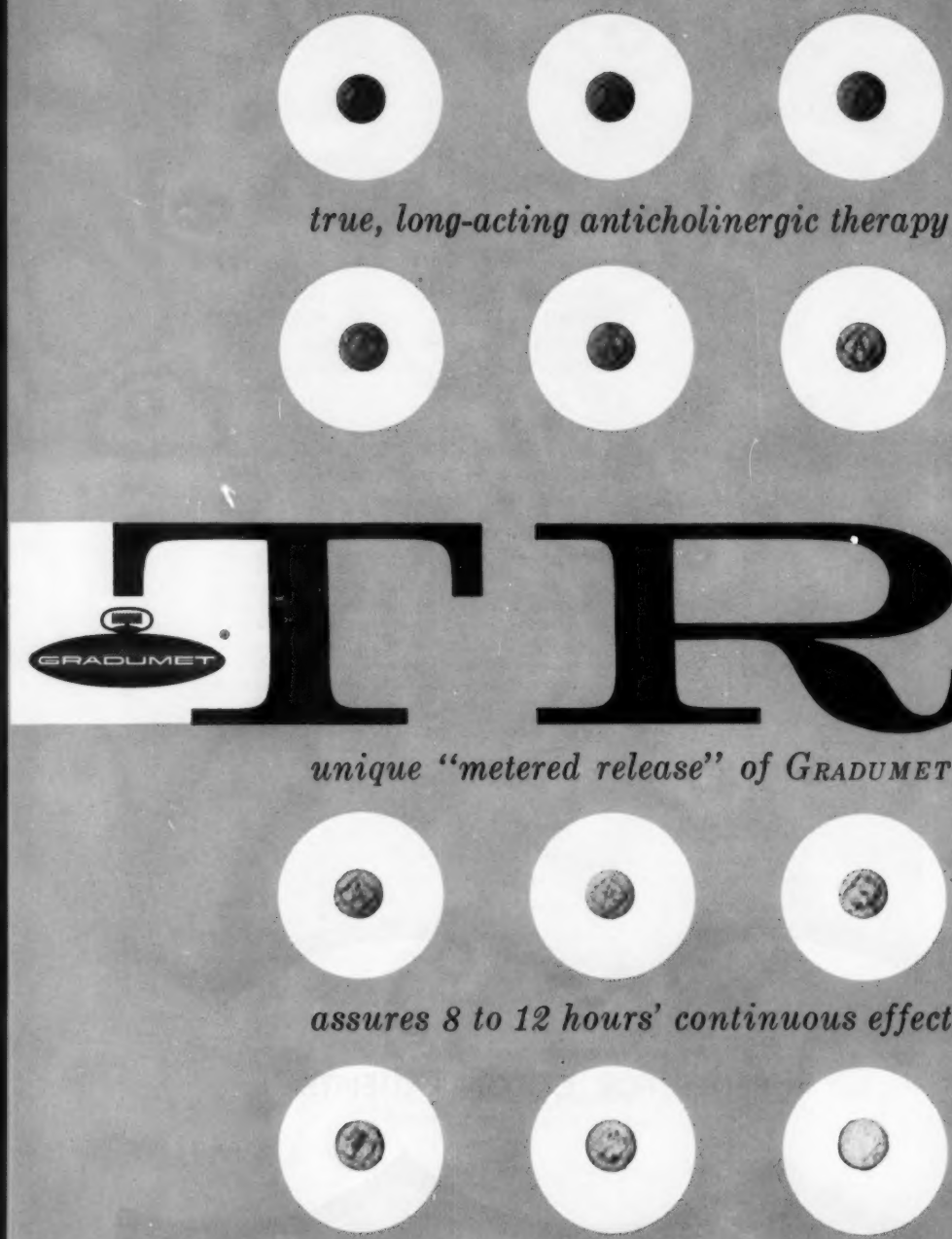
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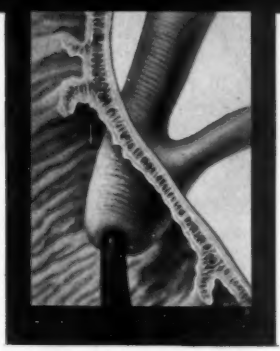

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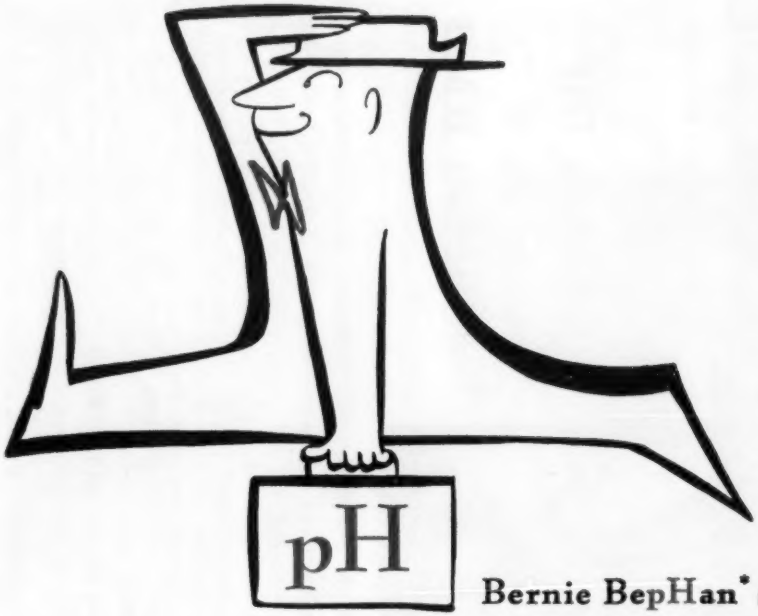
Page 42



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VOLUME 30 SEPTEMBER, 1958 NUMBER 3

PANEL DISCUSSION ON THE MANAGEMENT OF MASSIVE GASTROINTESTINAL HEMORRHAGE IN PATIENTS WITH LIVER DISEASE*

NORMAN ZAMCHECK, M.D., *Moderator*†
CHARLES S. DAVIDSON, M.D.‡
JANE DESFORGES, M.D.¶
J. ENGLEBERT DUNPHY, M.D.**
and
ROBERT LINTON, M.D.††
Boston, Mass.

Dr. Zamcheck:—We are here to discuss the management of massive gastrointestinal hemorrhage in patients with liver disease.

The panel consists of Dr. Charles S. Davidson, Dr. Jane Desforges, Dr. J. Englebert Dunphy and Dr. Robert Linton.

Those of us at Boston City Hospital have had a moderately wide experience with liver disease. Dr. Linton has had a similar experience at the Massachusetts General Hospital.

I should like to define the problem by showing the first lantern slide (Table I).

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†Clinical Associate in Medicine, Harvard Medical School; Chief of Gastrointestinal Research Laboratory, Mallory Institute of Pathology; Research Associate, Department of Pathology, Boston University School of Medicine.

‡Associate Professor of Medicine, Harvard Medical School; Assistant Director, Second and Fourth Medical Service (Harvard), Boston City Hospital.

¶Assistant Professor of Medicine, Tufts University School of Medicine; Assistant Director, Tufts Medical Service; Assistant Director, Tufts Hematology Unit; Physician-in-Charge, R. H. Laboratory, Boston City Hospital.

**Professor of Surgery, Harvard Medical School; Director, Fifth Surgical Service and Sears Surgical Laboratory, Boston City Hospital.

††Assistant Clinical Professor of Surgery, Harvard Medical School; Visiting Surgeon, Massachusetts General Hospital.

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(Slide) This slide summarizes some of the experiences at the Boston City Hospital in dealing with patients with massive gastrointestinal hemorrhage. The data is derived from two series, one published, the other unpublished.

In section 1 we find all bleeders—comprising consecutive bleeders admitted to the second and fourth medical services—over a period of approximately nine months, had a mortality of 25 per cent. This includes all patients with massive gastrointestinal hemorrhage.

If one limits the group to peptic ulcer patients, 65 in number, the mortality was 14 per cent. There were 33 under 60, without a single fatality. On the other hand, 32 patients over 65 years had a mortality of 28.1 per cent.

TABLE I

MORTALITY OF MASSIVE GASTROINTESTINAL BLEEDERS AT THE BOSTON CITY HOSPITAL

	Patients	% Mortality
I‡ All bleeders	111	25.4
All peptic ulcers	65	14.0
P.U. under 60	33	0
P.U. over 60	32	28.1
Nonulcers	40	37.5
II* All cirrhotics	84	57
Esophageal varices	39	66
Liver failure	26-50	72-87

‡ 111 consecutive pts. July 1954-March 1955 (Smythe et al)
* Cirrhotic pts. 1953-1956 (Gryska)

Smythe, C. H., Osborne, M. P., Zamcheck, N., Richards, W. A. and Madison, W. M.: Bleeding from the Upper Gastrointestinal Tract: An Analysis of 111 Cases. New England J. Med. **256**:441-447, 1957.

All the remaining patients with massive hemorrhage had a mortality of 37.5 per cent. It would seem that the peptic ulcer patients with massive hemorrhage, below 60, do not comprise a great problem. This is not true, however, of patients with liver disease.

The following data were provided by Dr. Gryska* and have not yet been published. Note that in 84 cirrhotic patients, there was a mortality of 57 per cent. Those with esophageal varices had a mortality of 66 per cent. Those with

*Dr. Paul F. Gryska, Instructor in Surgery, Harvard Medical School and Associate Visiting Surgeon, Boston City Hospital.

cirrhosis and liver failure, depending upon the kind of liver failure, be it coma, jaundice, or ascites, or combinations of all, had a mortality between 72 and 87 per cent.

(Slide) This, then, is the problem we should like to discuss for the remainder of the session. Patients with cirrhosis may have other lesions as well as esophageal varices (Table II). In Dr. Gryska's data we find less than 50 per cent of them bled from esophageal varices alone (45.9 per cent); 12.8 per cent had duodenal ulcer; 8 per cent gastric ulcer; 11.8 per cent had gastritis, and most of these diagnoses were made at autopsy. Here we see 1 per cent had erosions, 7 per cent had possible dual sources of bleeding and 12.8 per cent had no demonstrable lesion.

The problem, then, is to identify the patients with cirrhosis or severe liver disease as promptly as possible after admission to the ward. Such patients have the really high mortality.

TABLE II

BLEEDING LESIONS IN 84 CIRRHOTIC PATIENTS

	Per cent
Esophageal varices	45.9
Duodenal ulcer only	12.8
Gastric ulcer only	8.3
Gastritis (?)	11.8
Possible dual source	7.1
Esophageal erosions	1.2
Undetermined	12.8

B. C. H. 1954-1956 (Gryska)

We have all had the experience of failing to recognize severe liver disease in the face of hemorrhage, and several years ago Dr. Franklin W. White, Dr. Thomas C. Chalmers, Dr. Davidson and I attempted to use the bromsulfalein test as a screening device*. This test has proved successful when used properly.

(Slide) This slide summarizes our experience with approximately 208 patients on whom the bromsulfalein test was utilized (Fig. 1)†. In this series 52 had advanced cirrhosis, 56 had liver diseases other than cirrhosis. This included fatty liver, congestive heart failure, biliary tract disease, and others. One hundred and twenty-four had no demonstrable evidence of liver disease.

*Zamcheck, Norman, Chalmers, Thomas C., White, Franklin W. and Davidson, Charles S.: The BSP Test in the Early Diagnosis of Liver Disease in Gross Upper Gastrointestinal Hemorrhage. Gastroenterology **14**:343-361, 1950.

†Prepared from data collected by Gale Potee, Howard Christian, Amilcar Longarini and Norman Zamcheck.

When one compares the bromsulfalein tests done on these patients as soon as they were admitted to the ward with a massive hemorrhage, one gets the following results:

(Slide) We have advanced cirrhosis on the left, and no known liver disease on the right, and "other liver disease" in the middle. The bromsulfalein test result is depicted on this chart. All the patients with advanced cirrhosis, when first seen with hemorrhage, had BSP retentions varying from approximately 15 to over 60 per cent. Patients without liver disease, on the other hand, had no marked BSP retention despite shock, fever or other concomitants of massive hemorrhage. Those between 6 and 15 per cent occurred largely in the older patients.

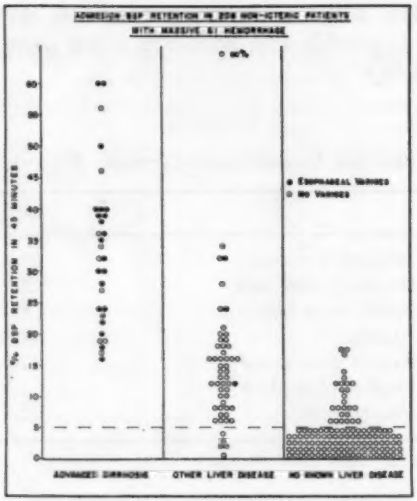

Fig. 1

Patients with liver disease other than cirrhosis had a variable retention of BSP. It was characteristic of this group that when the bromsulfalein test was repeated within one to two days, it promptly fell towards normal. This was not true in the patients with severe cirrhosis or esophageal varices—depicted here in solid circles. They have persistently high retention.

The 5 mg./Kg. dose was used and the retention was determined after 45 minutes, and this test provided a ready means for screening patients with advanced liver disease.

Making the diagnosis of liver disease, however, does not tell us what to do. There are other diagnostic steps that must be taken and steps in the course of management.

Dr. Davidson has had a wide experience in the management of patients with liver disease, and I should like to call upon him to tell us what should be done at this stage.

Dr. Davidson:—My "wide experience", I am afraid, is that of the house officers and research fellows at the Thorndike Memorial Laboratory and Harvard Medical Services at the Boston City Hospital. What I know is, a large part of it, second hand, but I will try to tell you a few things I consider to be important.

In the first place, one might disregard for a few minutes the title of "liver failure"—just for a few minutes—because various people have various ideas of what liver failure means. I will come back to that soon, and I should like to first make a few points about the medical management of massive gastrointestinal bleeding in a patient with severe liver disease.

I was a good boy and went to some of the exhibits a few minutes ago and was interested to learn from one of them advertising certain alcoholic beverages that it was pretty well proven now that alcohol had very little, if anything to do with cirrhosis. Nevertheless, the combination of alcohol and a poor diet seems to be pretty effective, and whatever the alcohol may have to do with it, my point is that most of the patients we see at the Boston City Hospital are heavy alcoholics. Most of them have been drinking up to the time of admission to the hospital, and that is the kind of problem with which we are faced.

These are quite different kinds of patients, I believe, from those which Dr. Linton sees at the Massachusetts General Hospital, and which many others see in other kinds of hospital populations throughout the country, in fact, throughout the world. That is an important point to be kept in mind.

Dr. Zamcheck has stressed the difficulty in diagnosing the source of bleeding, and this continues to badger us at the City Hospital. I think Dr. Zamcheck would agree, and I am sure Dr. Dunphy would, that we have had a resurgence of interest in this problem with Dr. Dunphy's coming to work with us at City Hospital as Chief of the Harvard Surgical Service. It certainly has stimulated us to study this major problem, one of the most serious problems on our medical wards, gastrointestinal bleeding.

Intubation and tamponade are the first measures of treatment, perhaps, that we might consider briefly. These are useful for two reasons: first, to stop the bleeding, if it will; and, second, to help in the differential diagnosis of the site of bleeding.

For these reasons we are at present—and all that I say here this morning is "at present", and subject to change—we are at present using the tube developed at City Hospital by Dr. Nachlas, who is now in Baltimore, with a triple lumen tube, with one opening at the lower end of the esophagus, in lieu of the balloon. This opening is for aspiration to prevent the patient from aspirat-

ing secretions, and also to decide whether bleeding from the lower end of the esophagus has stopped or not. The second lumen goes to the gastric balloon, which is intended to be inflated and drawn up against the cardia, where it should compress the veins supplying the esophageal varices and also gastric varices, and stop the bleeding. A third tube is, of course, in the stomach, for feeding purposes, or, earlier, for aspiration of blood, which is extremely important.

We have also had experience with the Sengstaken-Blakemore tube, and I don't mean to say this is not an extremely good tube. It may turn out to be much better than the Nachlas, but our present opinion is that for diagnostic reasons and also to remove the material in the lower end of the esophagus as rapidly as possible, to prevent aspiration, the Nachlas is a little better.

Dr. Linton, I believe, has a new tube which, I think, has certain advantages, and I hope he will have some words about that this morning.

The second treatment of these patients is, of course, massive blood replacement, and replacement of blood by blood which is as fresh as possible, preferably less than two hours old, because it may contain more of the clotting factors. I hope Dr. Desforges will comment more on this, as it may be one of the very important aspects of the continued bleeding of patients with liver disease.

The third item is prevention of hepatic coma, and by "hepatic coma" I mean that phenomenon with which we are all familiar, which may occur in patients with chronic, virtually stabilized liver disease, or may occur in patients with progressive liver disease. There is mental confusion progressing on to stupor, and finally to coma, frequently with a fatal termination. Also of diagnostic help is the so-called "flapping tremor", which has been called the "liver flap", and should not be, because it is not specific for liver disease, but occurs in many other metabolic diseases of the nervous system in which there are changes in the electroencephalogram.

The treatment of hepatic coma, and its prevention, has been improved quite dramatically, in the last two or three years. It still is a very serious condition and its treatment requires, in the first place, the most meticulous care. I had thought that a diabetic with severe acidosis required particular care, but a patient with hepatic coma, particularly with massive bleeding, requires even more very careful care from the nursing staff and doctors. It is almost as if a full-time, highly trained physician should be present 24 hours a day for the duration of the coma. That would be the optimum but, of course, it is difficult to achieve.

Sedation is poorly tolerated in patients with liver disease, and oversedation is particularly easily done and very dangerous in patients who have bled. Fluid and electrolyte balance I will just mention to say that imbalance is one of the causes of hepatic coma, particularly severe, rapid hyponatremia, and severe

hypokalemia. This must be watched extremely carefully, and I won't go into it in any more detail.

Now it is clear that many patients, if not most patients, with hepatic coma develop the coma because of absorption of products of digestion and bacterial action on nitrogenous material, protein particularly, in the gastrointestinal tract. Therefore, the first treatment is to remove all sources of these, and that means we do not feed the patients protein of any kind for at least a brief period of time. Secondly, and most important in the context here, we must stop the bleeding, and, if we can, empty the gastrointestinal tract of blood as soon as possible without causing severe diarrhea and upset again in the fluid and electrolyte balance.

This is probably the most important aspect of prevention and treatment of hepatic coma in these patients. Secondly and almost equally as important, perhaps, is the administration of an oral broad-spectrum antibiotic, and that which we have found most useful, or perhaps have used most is neomycin. We have also had experience with several others similar to neomycin, chlortetracycline, and penicillin, and so on, and as it has gone along, neomycin is probably the most effective, though we are not prepared to say this is the only one.

The antibiotic should be given in goodly doses. In our hands 4 gm. a day seems to be effective, in divided doses. We give it by tube, if the Nachlas or other tube is in place. It should be begun as soon as the patient can tolerate something down the tube, as soon as the bleeding has stopped, and it should be continued. We believe with this treatment, including aspiration of the stomach, gentle catharsis and enemas, that we have better results than before.

There are two substances which are quite popular, in addition, which may have some additive effect. These are sodium glutamate or sodium and potassium glutamate, and arginine.

Our experience with glutamate has not been satisfactory for the kinds of patients we see at City Hospital. Glutamate alone has been of little if any benefit. There is no doubt that glutamate will lower the blood ammonia in almost every instance, but it does not seem to bring a patient who is stuporous or in coma, out of coma, and that is, after all, what we want. I am sure it has done so in other people's hands and in other situations, but with the severely ill patients we have, it has rarely been of much use, and its great disadvantage, of course, is the large amount of sodium which must be administered, which is particularly dangerous to patients with ascites.

Arginine has the distinct advantage that it can be given as such without added sodium. We had a remarkably good result with arginine in a patient without liver disease who had not bled, who had a peptic ulcer, which was obstructed, who had a high blood CO_2 combining power because of bicarbonate administration. He was then given ammonium chloride in relatively large

doses to treat the alkalosis. He developed confusion, flapping tremor, and stupor, and was almost in coma when arginine was given, and he had a dramatic recovery from coma.

Now, back to liver disease: in our hands, again, arginine has not aided much, if anything, over complete protein withdrawal, stopping the bleeding, and broad-spectrum antibiotics. It is possible that it may, as time goes on, have an additive effect. No doubt it reduces the blood ammonia concentration.

Now, to come back to liver failure. We believe we can treat hepatic coma with some hope of success, not perfectly by any means—there is a lot more to be done, but the results are a great deal better than before. We can treat ascites with sodium restriction with excellent results. As to gastrointestinal bleeding, we are beginning to learn something more about its treatment, both medical and surgical. The patient with progressive active liver disease, particularly the alcoholic who is deeply jaundiced, is now one of the major unsolved problems in cirrhosis. I think we as yet have little to offer, and many of these patients will go on to a fatal termination even though we can treat the complications, so to speak, of their liver diseases. This is "liver failure".

Dr. Zamcheck:—Dr. Davidson has referred to Dr. Linton in two instances. I should like to ask the question: How different is the population of Boston City Hospital from that of yours at the Massachusetts General Hospital? Secondly, Dr. Davidson has put a plug in for the Nachlas tube. How do you feel about that, or do you have your own tube?

Dr. Linton:—I don't know that I can answer the first question very honestly, because I do not know too much about what goes on at the Boston City Hospital. All I can say is that 25 per cent of the patients that I treat are alcoholics, and I don't believe they are any different from the alcoholics at the Boston City Hospital. It was surprising to me that the figure was that low.

In regard to the balloon tube, the only difference between mine and Nachlas' is that mine has a much larger balloon than his. The balloon on my tube can readily be inflated and should be, using 600 to 700 c.c. of air. As a result, it has the advantage that you do not need as much pressure to inflate the balloon to a large enough size to prevent it from regurgitating up the esophagus, and it also conforms a little better to the cardioesophageal junction than either the Nachlas or the Sengstaken type of balloon.

Dr. Zamcheck:—Would all the panel members agree that there is no need for the esophageal balloon?

Dr. Davidson:—I would not agree to that. We are at present not using the esophageal balloon except in the occasional patients who will not stop bleeding without it. In this circumstance we have had success in replacing of the Nachlas by a Sengstaken-Blakemore tube and inflating the esophageal balloon, but we

believe there are dangers with this tube, and the advantages of the Nachlas outweigh the disadvantages, in particular patients.

Dr. Zamcheck:—Some of the favorable reports on glutamate have emanated from the Massachusetts General Hospital. Would you care to speak on your experience with glutamates?

Dr. Linton:—My experience has been similar to his. Sodium glutamate does not do what I had hoped it would at the time of bleeding. I have observed, however, that it may be useful to the patient in the late postshunt period, especially in those with direct portacaval shunts who cannot take an adequate amount of protein without developing signs of protein or ammonia intoxication. With the use of the glutamate, it has been possible in some of them to give them a higher intake of protein. If a patient is bleeding, however, I am sure that the best treatment is to stop the bleeding and get the blood out of the gastrointestinal tract by gastric suction and catharsis.

Dr. Zamcheck:—Do you feel there is a significant improvement in the results at this time as compared with those from 1953 through 1956?

Dr. Dunphy:—I think the results are no better in the past year than they were previously but there are some reasons for this. Part of it represents selection. Presently we are using this new combined approach for the patients who are bleeding massively and need to have the balloon inserted, whereas the earlier figures, going back through 1953 represented all cases. None of them were treated as actively as they are now.

I think, given a little time—I am not quite so pessimistic as Dr. Davidson—we will improve the results somewhat.

Dr. Zamcheck:—Can we draw the conclusion that the alcoholic patient, admitted as he is, to the City Hospital, in markedly depleted state of nutrients, and fluids, and electrolytes, is a poorer surgical risk than the patient without such evidence of malnutrition?

Dr. Davidson:—Yes.

Dr. Zamcheck:—I am considering the Massachusetts General Hospital, which seems to have a less dismal group of patients.

Dr. Davidson:—I would believe from what I have seen, that more of the Massachusetts General patients and more of the patients in some other centers, have a chronic variety of cirrhosis, related to alcohol, yes, but not recent heavy alcoholic intake, whereas so many of ours at Boston City Hospital, have been drinking heavily right up to the time of admission.

Dr. Zamcheck:—Dr. Davidson has given us some insight into how these patients should be treated, both to prevent the complications of liver disease and also to treat them as they occur. The patient with liver disease bleeds not

only because he has a bleeding lesion such as an esophageal varix, or ulcer, or gastritis, but frequently he also has a diffuse bleeding tendency. Dr. Desforges has studied this subject, and I should like her to describe this problem and tell us what we can do about it.

Dr. Desforges:—It has been observed in gastrointestinal bleeding, both in cirrhotics and in noncirrhotics that a certain number do continue to bleed, do have a recurrence of bleeding, and, in the fatal cases it seems apparent that each recurrence becomes more severe. Therefore, it was our interest to investigate whether coagulation factors became disturbed enough to contribute to this complication.

Dr. Chalmers and Dr. Bigelow and I investigated this several years ago in a series of gastrointestinal bleeders of both types. We do know, of course, that a patient with cirrhosis, to start with, has defects in his clotting mechanism, and a sick cirrhotic has defects which may actually be serious. These involve both thrombin formation—and, when thrombin is formed, one also can demonstrate defects in fibrin formation. We know, and in fact it is one of the often-used liver tests, that the prothrombin time is low in cirrhosis; not only is the prothrombin itself deficient, but also factors which lead to the conversion of prothrombin to its active component, that is, thrombin, are also depressed.

From the studies, we found that these factors are even further depressed during active bleeding; the prothrombin complex and the actual prothrombin activity itself, are strikingly lowered during gastrointestinal hemorrhage in these patients.

(Slide) This is a slide to demonstrate the prothrombin time of patients without known liver disease, and you will note even in patients without liver disease that prothrombin is depressed in active gastrointestinal bleeding. There is a tendency for the curves to remain down during hemorrhage, in patients in whom there is no other evidence of liver disease or dysfunction at this time.

During and shortly after the time of bleeding, there is no elevation above our normal limits until after the bleeding has stopped. Then, apparently, there is an overshoot, with the values going above normal.

(Slide) In our patients with cirrhosis, one notes the striking number with low values. When this is compared to patients sick with liver disease, but without bleeding, we find the median is even lower. In other words, bleeding probably impairs the ability of the liver to produce prothrombin at a time when it is perhaps utilizing it rapidly. To put it differently, the catabolic end of the prothrombin turnover may be increased without adequate anabolic response.

It is a fact that such patients, when operated, bleed from all wound sites, and it is our impression that this may be the reason. We know from many studies with dicumarol, that it is prothrombin itself which is the important defect, and prothrombin is what is being measured by this particular test.

We became interested as well in observing the effects on the vascular tree and on platelets, and were startled to come upon a rather striking depression of platelets in bleeding. This occurs in normals, and there is a rather characteristic platelet curve in hemorrhage in these patients. The platelet count is depressed to levels which we consider truly thrombocytopenic in patients without prior evidence of thrombocytopenia or liver disease at all.

(Slide) This is a chart of platelet counts done in patients without liver disease. In it one notes a depression for a week after the onset of bleeding, with a very late and rather worthless response in the second week.

(Slide) When plotted in relation to the day of cessation of bleeding, which seemed more pertinent, the platelet count rose after about three days. There is one important note to make here, that the bleeding stopped by certain clinical criteria before the platelets rose, and therefore this may not be an important factor in causing increasing bleeding. These levels found, however, will certainly lead to bleeding in many thrombocytopenic patients.

No other evidence of hemorrhagic disease was found in such patients, and it appeared that the vascular tree was intact in spite of the fact that the platelet levels were low.

(Slide) These are charts of individual patients. One can see that some did have a startling depression. Thus one finds severe thrombocytopenia in a patient with gastrointestinal bleeding, without evidence of other bleeding tendency, it is probably not idiopathic thrombocytopenic purpura; such patients do not bleed from one site only.

(Slide) This is merely a demonstration of the changes in the mean during bleeding, with the response after bleeding and platelet count.

In compensated cirrhotic patients the platelet counts are pretty close to normal—on the low side.

Here is a chart of patients who have active liver disease but are not bleeding. Note that these are also thrombocytopenic. These patients have much more impressive thrombocytopenia, with a much weaker response than the noncirrhotic gastrointestinal bleeders.

(Slide) We wondered whether it was the spleen in these patients which was leading to depression of platelets, and therefore studied some of our patients who had had splenectomy and had gastrointestinal hemorrhage. We found the same curve with or without spleen, but the curve is boosted to a higher level.

(Slide) This is merely a study of the mean counts during bleeding, after, and the second week, and finally, with greater effort, they get up to the lower limit of normal.

I must admit that in trying to evaluate whether this is a clinical problem it is difficult to decide whether thrombocytopenia is significant when it does not correlate well with a general bleeding tendency or with prolonged bleeding time which some of our cirrhotics have. We do have evidence that there are multiple deficiencies in patients with cirrhosis, exaggerated by hemorrhage. They have diminished coagulation factors in all spheres, and diminished platelets, and seem to have, during bleeding, separate vascular deficiencies which lead the bleeding at the needle site. Some have positive tourniquet tests without evidence of Vitamin C deficiency, but we have the impression that they have poor building stuff in their capillary walls, as well.

The problem of treating such patients with fresh blood has been brought up and I think we should note this might be helpful in replenishing several of the demonstrated deficiencies. We have the impression that the platelet response problem is due to the fact that they are being picked off each time they float by the bruise in the blood vessel. The bone marrows have demonstrated in all the cases the megakaryocytes are working at full speed, but the platelets are not staying in the circulation long because they are being pulled out, and we can add a few more by giving fresh blood, possibly better collected in plastic bags.

(Slide) This is what happens when a patient is exchanged with the usual glass-collected bank blood more than a day old. These observations were made in exchange transfusions of infants. The results are strikingly like those in the gastrointestinal bleeders. There is a true thrombocytopenia for about three days, as there is in the gastrointestinal bleeders after they stop bleeding. Then platelets return to normal levels. Fresh blood provides coagulation factors which cirrhotic patients lack, and when collected in plastic containers, it also supplies platelets.

Dr. Zamcheck:—This is from a practical point of view, Dr. Desforges. What do you think should be done routinely to demonstrate such deficiency?

Dr. Desforges:—Fortunately, the laboratory test done in the usual hospital, called Quick prothrombin time is one of the best measures of prothrombin deficiency in the cirrhotic. If this is off the curve, you can assume that the cirrhotic is deficient in all factors.

Coagulation time is certainly the least valuable, most prone to error, and as a test requires marked abnormality to demonstrate significant variation.

Dr. Zamcheck:—In the face of continued bleeding the surgeon is called in to save the situation. Perhaps ten or more years ago medical men and surgeons kept each other at arm's length; it is now generally agreed, that severely bleeding patients should be followed simultaneously by both medical men and surgeons; therefore, Dr. Dunphy, what considerations come to your mind when you are faced with a patient with cirrhosis, who may have, perhaps not eso-

phageal varices, but peptic ulcers, and possibly gastritis? Do you treat this patient as a usual duodenal ulcer patient, or does he present a special surgical problem?

Dr. Dunphy:—The problem of the esophageal bleeder is certainly a grave one in the cirrhotic patient, particularly if there is advanced cirrhosis or signs of impending liver failure. I do want to emphasize that when we speak of these very grave results which we are experiencing in the Boston City Hospital, we are referring to patients who have a combination of jaundice, coma, major evidence of liver failure, and massive bleeding from varices. At the present time they represent an almost insoluble problem.

The total derangement of metabolism, of which this bleeding tendency is just one manifestation, makes the patient who is bleeding from a duodenal or gastric ulcer, and who also has advanced liver failure an even worse problem than the patient with bleeding varices. It is becoming evident that with an aggressive attack, bleeding varices can be controlled by tamponade, but the patient who is bleeding from some other lesion in the gastrointestinal tract requires a major operation. A laparotomy on a patient who is already in extremis from the liver disease has an incredibly high risk.

Looking back over the records in the Boston City Hospital, the mortality under those circumstances, from surgery has been 100 per cent. Unless the bleeding can be controlled by nonsurgical measures, there is very little hope for this patient with massive hemorrhage and far advanced liver failure.

Fortunately, as you see from the figures that Dr. Zamcheck showed, there is a group of patients, about 25 per cent of the total, with cirrhosis and bleeding elsewhere in the gastrointestinal tract, who have had surgery and who have recovered. First of all, the patient with a compensated liver will stand the surgery quite well, and the most important point that we are learning is not to delay operation too long. The cirrhotic patient, even though well compensated, is less able to stand prolonged bleeding and over the last decade or so, as a result of joint medical and surgical interest in the problems of upper gastrointestinal bleeding, I think we have moved steadily toward earlier operation.

When I first became interested in this, right after the war, at the Brigham Hospital, with Dr. Seymour Gray, we placed the emphasis on getting the bleeding stopped before operation. Operation was selectively done for certain criteria which led us to feel that we should not delay. The results from that program were exceptionally good, but we had remarkably few patients who looked like any of the patients that I have seen at the Boston City Hospital!

I have had the opportunity of working both in the Peter Bent Brigham Hospital and the Boston City, and I can assure you that the difference in patients is incredible. They don't see the nutritional problems and the advanced

cirrhosis at the Peter Bent Brigham that we see at the Boston City Hospital. I suspect that the Massachusetts General patients are an intermediate group.

The problem of when to operate, however, still relates to how badly the patient is bleeding and whether or not the bleeding will stop.

(Slide) This shows the distribution of bleeding in several large series of cases and, without going into detail, or trying to read it to you, you can see at a glance that there is considerable difference in the distribution. The figures from a larger series from the City Hospital are shown on the next slide.

(Slide) These are figures similar to the first part of Dr. Zamcheck's group which he showed. They are the same figures, simply indicating that we have a much higher incidence of esophageal varices and of bleeding of obscure etiology than is encountered in many general hospitals.

(Slide) Whether the patient has cirrhosis or not, there are certain signs of severe hemorrhage which are worthy of consideration. These four are danger signals in the patient, whether he has cirrhosis or not. If he has any of these manifestations, I think we should not regard his problem lightly. I don't think we can say we are going to operate at once on the patients with any of these symptoms alone, but they represent very grave signs which are danger signals and require the bringing out of all the resources of the combined gastrointestinal team immediately and continuously.

(Slide) Here I have listed what I consider contributing factors, such as age. You saw in Dr. Zamcheck's figures that we have no deaths under the age of 60, whereas the mortality in patients over 60 is in the range of 25 per cent. That does make age a crucial factor to be weighed in the balance, but at the same time, the mortality from surgery in age is serious, so we have to balance that also and on the basis of age alone we certainly do not operate. We know that an elderly patient is much more likely to bleed to death, and therefore, if he is bleeding significantly, he is probably going to have to be operated upon. If he is bleeding very little, we may be able to temporize and control it by nonsurgical means.

I want to make two points about *delay*: 1. if the patient is in shock—it becomes crucial; 2. if the patient has cirrhosis and is continuing to bleed, even though slowly, we should operate. The same amount of bleeding in a patient without cirrhosis might lead one to temporize hoping that various diagnostic measures could be carried out and perhaps operation be ultimately avoided, depending on where the site of the bleeding was.

(Slide) How much is the patient bleeding? If the patient has to be transfused—as much as 500 c.c. every six to eight hours—whether or not there is cirrhosis the patient is bleeding massively and there is no justification for delay.

My remarks apply to the patient with or without cirrhosis who is bleeding from a site other than esophageal varices.

(Slide) This slide shows the response to transfusion of a patient with an exsanguinating hemorrhage. You will notice the slide covers a period of hours, and within 16 hours this patient has been in hypotension on two or three occasions, and obviously was not controlled by repeated transfusions.

I deprecate delay in such circumstances. This type of hemorrhage, whether the patient is cirrhotic or not, can be recognized quickly, and operation should be immediate. I am sure we spot this type of bleeder much more quickly than we did formerly.

There is *still*, however, a problem with the patient who does not bleed quite this badly, but continues to require occasional transfusions. If he is a compensated cirrhotic, you must not delay. You may do so, on the other hand, with a young healthy person who comes in with a bleeding duodenal ulcer.

I want to comment on what to do at operation.

(Slide) These remarks refer particularly to the cirrhotic, nonvariceal bleeder. We don't often know where the patient is bleeding from. Some are from duodenal ulcer. I have listed here some of the causes of bleeding. It is always a problem, even in the patient who does not have cirrhosis, but I think it is more of a problem in the patient who has cirrhosis, and makes the operative procedure doubly difficult.

We have had two instances in the past two years in which we operated upon a patient who, we thought, was not bleeding from varices. The circumstances were of a massive upper gastrointestinal bleeding, and x-ray showed no varices. There was a normal bromsulfalein test and the patients had no previous manifestations of cirrhosis. At operation they were found to have cirrhosis, and the site of bleeding was not identified. Both patients subsequently bled, and they were bleeding from varices which had not been identified.

In one of the cases a second operation was performed to ligate varices, within 24 hours.

I would put these two instances down as tactical errors.

If at operation you do not find the bleeding point in the stomach or duodenum, but there is blood in the stomach and the patient has evidence of cirrhosis at operation, even though no varices were shown by recent x-ray, or the patient failed to respond to the use of a tamponade (which was true of one of our patients) you must consider varices as the probable site of bleeding. At the present time, I would be inclined, under the circumstances, to mobilize the esophagus and bring it into the abdomen by that route, as Stewart Welch is doing with some success.

It is of importance to note parenthetically, however, that in one of these patients we found bleeding from a large varix in the middle third of the esophagus. I do not believe we could have controlled it through an abdominal approach.

One final word about the technic of the operation:

(Slide) When the abdomen is open, one of the most important steps in the cirrhotic bleeder is to notice whether or not blood is clotting in the wound and, if it is, as you enter the abdomen you have reasonable assurance that if you get on with the procedure and control the bleeding, a bleeding diathesis is not going to be a crucial factor. If you have trouble at the very outset with failure of blood to clot, you have got to get the freshest possible blood for transfusion.

At operation, failing to find an obvious site, a gastrotomy is a most important detail of the procedure. It is a mistake not to open the stomach and look when you fail to find the source by palpation or inspection.

(Slide) This slide simply shows one example. Here you see multiple tiny gastric erosions—no indication of this as a source of bleeding prior to opening the stomach.

(Slide) This shows a gastrotomy, during which the duodenum was inverted through the pylorus. There is a tiny acute bleeding point on the anterior wall of the duodenum, which was the source of major bleeding.

In the last few years, by doing gastrotomy, we have reduced the instances in which bleeding has occurred postoperatively, or in which we have finished the procedure without finding the source of the bleeding—to a very small number. The only two being the variceal bleeders which I mentioned.

Dr. Zamcheck:—Dr. Dunphy, would you clarify one point. Did I understand you to say when you open the abdomen and find no site of bleeding in a patient with cirrhosis, you assume the patient has esophageal varices?

Dr. Dunphy:—Yes, if the patient has cirrhosis at operation; in other words, in this individual of whom I spoke, in the one instance the patient was suspected of having cirrhosis, but failed to respond to tamponade, and the other patient was not even considered as being cirrhotic. He had a normal B.S.P., and at operation gastrotomy was performed and no bleeding site was found. In that patient, we should have looked, then and there, at his esophagus, and not waited until the next day, when he bled a second time.

Dr. Zamcheck:—It seems to me if you make that assumption, you are going to be operating on patients for varices who do not have varices in a certain number of instances. What are your criteria for establishing the diagnosis in these patients positively?

Dr. Dunphy:—I wish I knew. I would like to be told how you can tell there are varices, and that the varices are a source of bleeding, unequivocally, prior to operation.

Let's review it step by step. A patient who comes in with evidences of liver disease is not much of a problem, because you are immediately focusing on varices as the cause of his bleeding. He has a tube passed, tamponade is done, and he responds to the tube. The response is, in my experience, dramatic. If he reacts effectively, within an hour or two you have some assurance, even without aspiration from the stomach, that you have controlled the source of bleeding. If that response does not occur, and he is still bleeding, and the gastric tube is aspirating blood, you have to assume he has varices, and the tube is ineffective, or he is bleeding from some other lesion in the gastrointestinal tract, such as a gastric ulcer. Assuming also that he is in a reasonable condition, not in profound coma, or in a moribund state, we will operate upon him with some confidence that we will find a bleeding point in the stomach and duodenum.

Let us assume, however, that the patient comes into the hospital and has no stigmata of cirrhosis at all, has a normal B.S.P., is bleeding from the upper gastrointestinal tract, and, as in one of the instances I cited, has a negative x-ray of his esophagus. He continues to bleed, so you feel operation imperative. An esophagoscopy may be done but we have been misled by it. There may be failure to recognize that there are bleeding varices. At any rate, you enter the abdomen, find blood in the stomach but no clinical signs grossly of ulcer or other cause for bleeding. You are surprised, however, and find cirrhosis of the liver, which was not recognized by B.S.P. or history previously. The stomach is full of blood but there is no cause found for the bleeding in the stomach, even after gastrotomy. I think you have to assume he is bleeding from the esophagus, and take a look at it one way or another, either by bringing the esophagus into the abdomen at the time, or by doing a thoracico-abdominal, or separate thoracic approach.

Dr. Zamcheck:—This is not a blind operation of the esophagus, but an indication for a careful examination of the stomach?

Dr. Dunphy:—A last look, in a patient who has a site of bleeding which was not suspected preoperatively.

Dr. Zamcheck:—Dr. Davidson, would you comment on this?

Dr. Davidson:—I would agree with everything Dr. Dunphy has said, with the possible exception of the last patient he described, and yet I don't find that I have data or evidence to disagree with him.

I think our problem is that no matter what we do in this very complicated situation, we are going to make some mistakes, with our present knowledge and present facility and means for making diagnoses. We are going to make some

mistakes no matter what regime we try, and the question really is: under what system, and what rules and regulations can we devise, and what regimen can we provide by which we will make the fewest possible mistakes? I don't believe that can be finally answered at all.

Dr. Zamcheck:—Dr. Dunphy's discussion leads us naturally to the problem with which Dr. Linton is familiar, and we would like to ask Dr. Linton to tell us what surgical approach he now favors for the management of bleeding esophageal varices. I hope he will also enumerate for us his criteria for accepting the diagnosis of esophageal varices, and, further, does he agree with Dr. Dunphy's just-described regimen?

Dr. Linton:—I actually wonder and doubt that there is very much difference between the alcoholic cirrhotic patients with bleeding esophageal varices seen at the Boston City Hospital, as compared to those we see at the Massachusetts General Hospital. It is true, of course, they see many more than we do, but we see some very sick ones. I think there is probably very little difference in our figures. Dr. Welch, in our hospital, reviewed close to 300 patients with upper gastrointestinal bleeding a few years ago and found that there was in the vicinity of 25 to 30 per cent of these patients who had bleeding esophageal varices. Dr. Simeone at the Cleveland City Hospital the same year came up with figures which were practically identical with Dr. Welch's. It is possible that at the Boston City Hospital they have more debilitated patients in the alcoholic group than we see in ours, and this may be the explanation of their relatively high mortality rate.

There are a number of things we have learned, however, in the past 10 or 12 years in regard to this problem, since we became interested in the problem of surgically treating bleeding esophageal varices in 1945.

One of these items was the fact that many of our patients were succumbing to bleeding esophageal varices on the medical wards without being given the benefit of surgery. With the help of Dr. Richard Warren, it was found that during the period from 1945 to 1950 there were 65 patients who came to the hospital with bleeding esophageal varices secondary to cirrhosis of the liver. Thirty-three of them were subjected to shunt surgery and 32 of them were not. The latter group all died, and it is important to note that in the analysis of this group of 32 patients, 23, or 72 per cent of them, actually died of exsanguinating hemorrhage from their esophageal varices. Four, or 12½ per cent, died of severe hemorrhage and secondary liver failure.

I became interested in the surgical attempt to control this severe type of bleeding in one patient in whom we utilized the Sengstaken balloon tube on three or four occasions, and on removal of the tube he would begin to bleed again. He was given a total of 50 transfusions, and eventually died from hemorrhage and liver failure about a month after he was admitted to our hospital.

An autopsy was obtained which revealed a very small opening in one of his esophageal varices about 2 centimeters above the cardioesophageal junction from which he actually bled to death.

This case was seen in 1950 and at that time I decided that something should be done in similar cases to obtain a more effective control of the bleeding source than balloon tamponage. About this time, Dr. George Crile of Cleveland recommended suturing the esophageal varices through a transthoracic exposure as a definitive procedure. I personally don't think it can be used as such except in patients with an extrahepatic type of block. It does not seem to do so well in the cirrhotic group, but I think it is well worth using as a temporary measure to control this severe bleeding so that one can get these patients into better shape for the major procedure of a shunt operation.

The type of balloon tube that I use is made by the Davol Rubber Company in Providence, and is called the Linton tube. It has three lumens in it, one to aspirate the stomach with, another to aspirate the esophagus, and the third to inflate the balloon. The balloon is inflated to the size of a large grapefruit, and then a two-pound weight is placed on the end of the balloon protruding from the nose which impinges it against the cardioesophageal junction. By this means, one can stop bleeding from esophageal varices in a relative few minutes since all the blood that leaks from the esophageal varices is coming from the submucosal veins of the stomach.

It is my opinion any patient in whom cardioesophageal balloon tamponage is necessary to control exsanguinating hemorrhage, should be considered for immediate surgery to control the bleeding source by a direct suture of the bleeding varix. The operation is done with the patient in the right decubitus position. The 6th or 7th rib is removed on the left side, the pleural space is opened and then the esophagus is opened through a vertical incision just above the diaphragm. The esophageal varices appear as large distended veins similar to large internal hemorrhoids one sees at the other end of the gastrointestinal tract. They are picked up with the mucosa over them and sutured with a 00 chromic catgut suture, carrying the suturing well down into the submucosa of the stomach. As a rule, three columns of them are sutured in this manner and by this method the bleeding source can be completely controlled.

The mortality rate of this procedure is of some interest. It unfortunately is higher than it should be in most people's hands, and in my opinion, the reason for it is that there is too much delay between the time the patient enters with bleeding esophageal varices, and the actual carrying out of the suturing of the esophageal varices. This happens in our hospital. The patient may come in in the evening and a balloon tube is inserted; the next morning the patient looks quite well so it is left down another day and removed on the following day, without bleeding at first; but then bleeding recommences, usually several days after admission, and the balloon tube is put down again at which time it

is decided the esophageal varices should be sutured. You will note that there has been a delay of three or four days between admission and the operative procedure, during which the patient has been kept on intravenous feedings without nourishment by mouth. This, in my opinion, is very bad for a sick liver patient and I think may explain why a good many of these patients have not come through the surgical procedure of suturing the esophageal varices, as well as if they were done immediately on entering the hospital, since in my opinion they will never be in better shape than they are at that time, providing of course they are not in a comatose condition.

It is our plan on most of these patients in whom we suture the esophageal varices, that after four to six weeks a splenorenal or a direct portacaval shunt should be performed. If one waits longer these patients usually start to bleed again. It is possible in the majority of them to prepare them satisfactorily for shunt surgery in four to six weeks.

During the past few years, many surgeons have reported on shunt procedures. Some of them, for an unknown reason, are beginning to wonder whether shunt surgery is the proper thing to do for these patients. They have even suggested to me that perhaps one should take alternate cases and treat one-half with shunts and the other half without surgery. It seems to me such thinking demonstrates a lack of understanding of why shunt surgery was started for these patients. There is no question in my mind that the only reason for doing shunt surgery is to stop these patients from bleeding from their esophageal varices. Unfortunately some surgeons have suggested, or even asserted that liver function does improve after shunt surgery. I personally think it has no direct effect on liver function. If anything, it seems to be detrimental to it, especially the total shunt with the direct portacaval type. Perhaps the only way it helps liver function is the fact it prevents repeated hemorrhages, and therefore takes the load off the sick liver and in that way it may possibly be able to improve its function.

In regard to the type of shunt, I personally prefer the splenorenal in which the shunt is made between the end of the splenic vein and the left renal vein by an end-to-side suture technic. In my opinion, if the patient has a large spleen, one will practically always find an enlarged splenic vein with which to do a satisfactory shunt. As the result of this observation, I find it unnecessary to do any type of splenoportography or portography to determine the size and condition of the splenic and portal veins. I think portography has a place in patients who have had splenectomy and have continued bleeding, or perhaps in those who have had a splenorenal shunt and which is not working and bleeding has recurred.

The chief advantage to the end-to-side portacaval shunt is that it is a more complete shunt, and therefore there is less danger of secondary hemorrhage with this type of shunt. It is also the easier one to do, and for that reason most

surgeons are preferring it today, but I think they are forgetting the fact that the patients with the splenorenal type seem to do better, both in the immediate postoperative period and in the late period. The neuronutritional disturbances seem more marked with the direct portacaval anastomosis, and since many of the surgeons are doing this type and seeing this complication, it is perhaps the reason they are wondering whether shunt surgery is worthwhile. The following figures also demonstrate why I think the splenorenal is preferable to the portacaval. In 108 splenorenal shunts done for cirrhosis of the liver with bleeding esophageal varices, there were 9 deaths, or a mortality rate of 8 per cent, and in 45 direct portacaval anastomoses, there was a mortality of 9, or 20 per cent. One of the factors in reducing our operating mortality has been the improvement in methods of anesthesia for these patients with sick livers. It is my opinion the use of hypotensive spinal anesthesia with a systolic blood pressure of between 50 and 60 mm. of mercury during most of the operative procedure, has been a very important aid in performing this difficult type of surgery, since it reduces to a minimum the blood loss, and makes the operation much easier to perform, and at the same time requiring less transfusions, which I can't help but believe is important in handling this group of patients.

I am sure another question which is important to answer is what have been the late results of these shunts? We have done them primarily to control bleeding, and the following are the results obtained in a group of patients followed from one to nine years. There were 66 splenorenals which were followed. Four patients had minor bleeding and 5 had major bleeding. Four of the latter had portacaval shunts performed at later dates. There were two deaths from massive bleeding in this group of 66 splenorenal shunts. I am sure if these patients had lived in the vicinity of Boston we could have saved them, but both of them lived on the other side of the continent. There were 28 patients who had direct portacaval shunts. Three, or 12 per cent of these, had major bleeding, but none succumbed. It is important to point out that in the three that had postshunt bleeding it was necessary to do a thrombectomy of the portal vein at the time of carrying out the shunt. In each case it is presumed secondary thrombosis probably occurred.

Despite this increase in postshunt bleeding in the splenorenal group, it is my opinion it is probably the better shunt to perform, providing one has a satisfactory splenic vein to utilize, and this can usually be determined by the presence of an enlarged spleen. One of the reasons that I believe the splenorenal is preferable to the direct portacaval, is that the late postshunt deaths have been fewer in the former than in the latter. There were 15 deaths in the splenorenal group, or a postshunt mortality rate of 23 per cent, whereas in the direct portacaval group there were 11 deaths, or a mortality rate of 39 per cent. It is of some interest that 5 of the splenorenal deaths, or 33 per cent, were from liver failure, whereas 6 out of the 11 portacavals were from the same cause, or 55 per cent.

Further evidence that some type of a portacaval shunt, either a splenorenal or a direct portacaval one, protects patients against bleeding, is found in the fact that about 16 per cent of the shunted patients had postshunt bleeding whereas in 9 patients shunts were attempted but could not be constructed; bleeding occurred in all of them.

As further evidence, 43 patients were studied. One hundred per cent of them had had severe bleeding from their esophagal varices. Before the shunts were performed, a total of 523 transfusions were given to them. After the shunting procedures only 3 had postshunt bleeding and these required only 12 transfusions, obviously a great improvement in the bleeding tendency.

In a few instances, in addition to controlling the esophageal bleeding, we have found that ascites may be improved or completely remedied by some type of shunt, in most instances a splenorenal one. It is our opinion these are relatively few, and in most instances we do not recommend shunt surgery for the control of ascites. The ones which have done best are those that will maintain a serum albumin above 3 gm. per cent, and if they do this but still collect ascites, they are seriously considered for some type of shunt procedure.

In conclusion, then, I would recommend that for the emergency treatment of exsanguinating bleeding from esophageal varices, one should utilize balloon tamponade and if this is necessary, then an immediate suture of the bleeding esophageal varices through a transthoracic transesophageal approach. The close cooperation of the internist, the surgeon, the anesthesiologist and the radiologist is of utmost importance in the proper handling of this disease complex.

Dr. Zamcheck:—Thank you, Dr. Linton.

In view of the limitations of time, we are obliged to leave out the names of a great many other people who have made contributions to the management of these patients, and I am grateful to you for mentioning this.

I should like to ask each of the panel members to make a closing comment, or ask a question, before we respond to questions from the floor.

Dr. Davidson, would you comment now?

Dr. Davidson:—First I should like to comment on Dr. Linton's statement that the splenorenal shunt is more advantageous as an operation than the portacaval shunt because of the higher incidence in the portacaval, of what he calls neuronutritional disturbances. I assume by this he means hepatic coma, or protein intoxication, or whatever various terms have been applied to it. My impression, as I have said, is that these can be controlled by neomycin, and postoperatively not even protein withdrawal is usually necessary.

Have you had any untoward effects?

Dr. Linton:—Diarrhea.

Dr. Davidson:—Yes, diarrhea, as everyone else, in a small number of patients, but small doses have not given us difficulty, and I think will effectively control the "neuronutritional disturbances", that is, impending hepatic coma from protein in the gastrointestinal tract.

Dr. Desforges:—I have just one comment on Dr. Linton's very interesting presentation—after all the work he has done. I have tried to do some quick arithmetic, and have not succeeded.

Of 15 splenorenal deaths, 5 were with liver failure, and of 11 portacaval deaths, 6 were with liver failure. Moreover, the former series seems to include patients of more recent vintage. I do not think that the two groups of figures show significant differences.

Dr. Linton:—These are honest statistics even if not statistically significant. They give our results and so I believe they are significant.

Dr. Dunphy:—There have been several questions sent up on the role of esophagoscopy and gastroscopy.

Our experience with esophagoscopy has not been particularly gratifying, that is, one must have a single individual who is keenly interested in the problem and constantly available, if you are going to profit, I think, by endoscopy on a patient with massively bleeding varices. We have been misled both ways—namely that there were varices when they were not present, and vice versa.

We are interested in the use of a gastroscope for this purpose. Mr. Norman Tanner, in London, has used gastroscopy as a means of identifying the bleeding site in a large number of cases. It has proved to be a most useful maneuver, and we would like to put it to the test.

Dr. Linton:—I would like to stress the importance of the help the radiologist can be in the care of this group of patients. We are convinced in our hospital that he has a very definite role to play in aiding in the diagnosis of these problems, and we utilize a barium swallow as an emergency procedure, very often when the patients are admitted to the hospital, even during the time of the bleeding. We have frequently found that a diagnosis of esophageal varices can be made by the radiologist, and in other instances they can be ruled out as the cause of bleeding and the bleeding site found to be in the stomach or duodenum. The results of such an examination, especially during the middle of the night, can be a great help in the proper handling of these critically ill patients, and it is believed should be more widely used.

Dr. Zamcheck:—I should like to ask Dr. Davidson a question. I did not realize that shunt surgery was still being used as possible therapy for ascites. Perhaps Dr. Linton did not mean exactly that.

Dr. Davidson:—I happen to feel that the sodium restricted diet is so effective in controlling further formation of ascites, sometimes even indicating

diuresis and disappearance of ascites, and is so harmless compared to a major surgical operation, that it is far safer and more effective as a procedure than the portacaval or splenorenal shunt, or adrenalectomy, or any other surgical procedure for the treatment of ascites.

Dr. Linton:—I would like to say a word or two about the use of shunt surgery in the handling of ascites. I did not mean to give you the impression that we do shunt surgery for all cases of ascites, but only in an occasional one that cannot be controlled by a medical regime. The photograph of the one I showed you on the slide was a patient of Dr. Daniel S. Ellis, who had been following her for three years, continuing to do repeated abdominal taps for recurring ascites. He had used all possible medical measures to control the ascites but without avail, and we finally resorted to a splenectomy and a splenorenal shunt. It was considered in her case because of a relatively normal serum albumin level. Following the shunt the ascites has not recurred, and the patient now is in her second postshunt year.

Dr. Davidson:—It seems a shame to have to do something like that because a patient cannot adhere to a diet. It is pretty difficult.

Dr. Linton:—I can assure you that this patient did adhere to the diet Dr. Ellis recommended, and despite it her ascites was not controlled.

Dr. Zamcheck:—There are many more questions which have been submitted. I am afraid we cannot attempt to answer them.

This symposium, then, introduces you, if you will, to the problem of massive hemorrhage in a patient with liver disease. There has been much progress made in the last ten years in this matter, and I anticipate there will be greater progress in the next ten.

I want to thank the participants for their contribution.

LIVER PATTERNS IN BILIARY HYPERCHOLESTEREMIA*

H. EDWARD MacMAHON, M.D.

Boston, Mass.

Because of the importance of the liver in the endogenous synthesis of cholesterol in the body and also because of the role of the liver in the metabolism of dietary sterols, it is only natural that one should pay particular attention to the histology of this organ in any patient with hypercholesteremia. Actually, however, using conventional stains and technics, little or nothing of interest is seen in this organ in the majority of patients with an elevated blood cholesterol. There is, however, one group of patients who comprise an exception. These patients, including children and adults of both sexes, show hypercholesteremia and jaundice, and in this group there are recognizable changes. It is with these changes that this paper is primarily concerned and to distinguish this group of patients showing both hypercholesteremia and jaundice, from the hereditary idiopathic and other varieties of hypercholesteremia, the term "biliary hypercholesteremia" is suggested.

To Addison and Gull[1] in 1851 is usually given the priority of describing the first clinical case belonging to this group under discussion. Their patient, a female of about 35 years of age, whose liver was palpably enlarged, had been mildly jaundiced for months and in the course of time cutaneous xanthomata appeared over several parts of the body. We do not know the nature of the disease of the liver of that patient, but it is known that the liver was considered by those early investigators to be the probable primary seat of trouble. Evidence has accumulated rapidly in recent years to substantiate their early assumption. What, however, had originally been considered to be a solitary and specific disease of the liver appears now to be a number of quite unrelated disease entities. This is of considerable clinical importance since therapy and prognosis in each individual patient will depend on the nature and location of the particular basic disease within the liver.

Through long association with Dr. Thannhauser it has been my good fortune to have had the unusual opportunity to study by biopsy and autopsy the livers of a number of patients showing biliary hypercholesteremia and the following is simply an enumeration and brief description of the patterns within the livers that have been found in this group of patients.

1. *Obstructive biliary cirrhosis:*—The histological pattern here[2] in a moderately advanced case is characterized by a preservation of the normal lobular pattern, centrolobular bile stasis, an accentuation of the portal areas, a dilatation

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From the Department of Pathology, Tufts-New England Medical Center.

and moderate increase in the number of perilobular cholangioles and a minimal inflammatory reaction in all of the portal areas. This is a very common pattern but only a very small fraction of patients showing this condition will reveal excessively high levels of blood cholesterol. The etiology usually depends on some type of mechanical obstruction involving the large collecting ducts.

2. *Cholangitic biliary cirrhosis:*—This is sometimes referred to as chronic cholangiohepatitis. It is characterized by a moderately diffuse chronic inflammatory reaction in the small interlobular bile ducts with extension of the inflammatory process along the perilobular cholangioles into the substance of the adjacent lobules[3]. The two most striking features of this condition are the inflammatory reaction and the hyperplasia of cholangioles. There may be a moderate degree of bile stasis. For a very long time the lobular pattern remains reasonably preserved. As the disease progresses there may be obliteration of interlobular bile ducts and phlebitis with occlusion of vessels. The etiology of this disease may be viral, bacterial or chemical, and in some patients allergy may be a predisposing factor. It is frequently associated with infection in the extrahepatic biliary tract and not uncommonly there is a latent inflammatory reaction extending out along the ducts of the pancreas.

3. *Pericholangiolitic biliary cirrhosis:*—This is also known as primary biliary cirrhosis. The pattern of pathology here is characterized by a slow insidious and progressive inflammatory reaction throughout all of the portal areas with gradual extension into the peripheral zones of the adjacent lobules[4]. The extrahepatic biliary tract is free of disease, and the large and medium-size interlobular bile ducts throughout the liver are unaffected. Of particular interest is a disappearance of the smaller interlobular bile ducts. As the disease progresses liver cells at the periphery show regressive changes and disappear only to have their space filled in by fibrous tissue. The lobular pattern, for a long time well preserved, is ultimately cut up into smaller nodules, and bile stasis is most marked at the periphery of these lobules. The etiology of this disease in most cases remains obscure, but the possibility of a viral infection, chemical intoxication and allergy have all been suggested. The fact that this type of liver disease is usually found in females about the age of 40 and that it tends to run a chronic and progressive course establishes it as a rather specific entity.

4. *Congenital acholangic biliary cirrhosis:*—This has also been referred to as congenital absence, hypoplasia or atresia of the intrahepatic collecting system of bile ducts. This is a rare condition and, as would be suspected, is encountered in infants and young children. The pattern within the liver is characterized by a mild inflammatory reaction of a very low-grade chronic type in almost all of the portal areas, and what is most important and what may be readily overlooked in examining the liver of such a patient is the congenital absence of the interlobular system of bile ducts[5]. The lobules are preserved, and there is a minimal degree of bile stasis scattered throughout the lobules.

5. *Acquired absence of interlobular bile ducts:*—This is an extremely rare condition and one that may be found in the absence of any other disease in the liver. The lobular pattern is perfectly preserved, bile stasis is intense and the portal areas are essentially negative except that they contain no interlobular bile ducts[6]. A patient may die with this condition. The etiology is obscure though in one case that we had the opportunity to study the onset followed the use of chlorpromazine, a drug which has been seen to destroy bile duct epithelium. The exact mechanism of action here is quite unsettled and individual susceptibility must play a most important role.

6. *Posthepatitic cirrhosis:*—This is such a common disease of the liver, and yet only a very small fraction of cases show a significant degree of hypercholesteremia. In the few cases that we have seen there has been nodular reconstruction of the liver and a moderate degree of bile stasis. Most of the inflammatory reaction has been concentrated in the portal areas, producing at first glance a pattern mimicking chronic pericholangiolitic biliary cirrhosis[7]. The etiology of this group is probably viral in nature, and it must be admitted that there is nothing in the histology of the liver upon which one could with certainty postulate a particularly high blood cholesterol level.

7. *Pigment cirrhosis:*—Only a very small percentage of patients with classical pigment cirrhosis will show a significant elevation in the blood cholesterol, but it is these cases that are of particular interest to us here. Some of them are associated with chronic jaundice and moderately widespread cutaneous xanthomatosis[8,9]. It is true that, in the early stages of pigment cirrhosis, the pattern within the liver may have much in common with that of biliary cirrhosis in which the lobular pattern is well preserved and in which the portal areas are widened, lengthened and accentuated. Bile stasis too is commonly found in this disease. The degree of hypercholesteremia is not related to the extent or degree of the cirrhosis, in fact as the disease progresses the blood cholesterol level may fall. In respect to etiology the factors may be either extrinsic or intrinsic and in any case individual susceptibility must again play an important role.

8. *Fibroxanthomatous biliary cirrhosis:*—Only three cases of this disease have been encountered, and all three were in children under three years of age[10]. The pattern here is one of a diffuse proliferation of histiocytes and fibroblasts throughout all of the portal areas of the liver. Some of these histiocytes are laden with lipid. There is interruption in the interlobular bile ducts, and there is a moderate degree of bile stasis within the well preserved lobules. This disease of the liver is simply part of a systemic disease of lipid metabolism going on throughout most of the body. It belongs in the family of Hand-Christian-Schuller disease. In the early stages of this disease the liver is of normal size and unaffected. There is no jaundice and there is no appreciable elevation in blood cholesterol. Only in the late stages of the disease, when the intrahepatic biliary tract is obstructed, does the child experience signs and symptoms of biliary hypercholesteremia.

It is of interest from the standpoint of liver pathology and it may be significant too in respect to the problem of atherosclerosis that in none of our cases of biliary hypercholesteremia was a patient with active alcoholic cirrhosis encountered.

Comment

It is comparatively simple to describe these patterns that have been found in this group of patients, but many facets of the problem still remain unsolved. In many cases the etiology of the liver disease remains obscure. Furthermore it is important to point out that some of these patterns may be found in the absence of any significant degree of jaundice or hypercholesteremia. When both of these are present there is often a striking disproportion between the degree of jaundice and the cholesterol level just as there may be a striking contrast between a minimal degree of liver pathology and very high cholesterol values. The course of the disease will vary from case to case, and in some, where the etiology is known and the cause can be eliminated, the jaundice may disappear and the cholesterol may return to normal values.

In this group of patients much attention has been focused on the presence of visible xanthomatosis. This is generally conceded now to be secondary to a significant rise in the blood cholesterol. What is probably of much greater significance to these patients, however, is the clinically invisible, precocious and excessive deposition of cholesterol that may be found in the intima of the blood vessels. Usually the vessels most commonly involved are those that are most often the seat of arteriosclerosis, but in this group of patients moderately large accumulations of lipid are not infrequently found in the walls of the pulmonary vessels as well. If the assumption is right that hypercholesteremia in this group of patients is related to pathology within the liver and if cutaneous xanthomatosis is simply a visible manifestation of hypercholesteremia then it would seem reasonable to assume that several patterns within the liver may contribute to the precocious and excessive degree of atherosclerosis that at times is seen in this group of patients.

Summary

The term "biliary hypercholesteremia" is used to designate an increase in blood cholesterol that is related to pathology within the liver. Patients showing this condition tend to manifest a varying degree of jaundice. Eight distinct patterns have been found in the livers of this group of patients. These include obstructive biliary cirrhosis; cholangitic biliary cirrhosis; pericholangiolitic biliary cirrhosis; congenital acholangic biliary cirrhosis; acquired absence of interlobular bile ducts; posthepatitic cirrhosis; pigment cirrhosis and fibroxanthomatous biliary cirrhosis. Admitting the importance of cutaneous xanthomatosis as a complication of hypercholesteremia, emphasis has been placed on the still more

significant but relatively inconspicuous precocious deposition of cholesterol in the walls of blood vessels in this group of patients.

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Discussion

Dr. I. Snapper:—The wonderful collection of Dr. MacMahon's slides shows that a purely obstructive biliary cirrhosis must be extremely rare in humans; it is usually the result of a combination of obstruction and inflammation. This holds true for the biliary cirrhosis which is caused either by common duct stones or by carcinoma in humans. In either case both obstruction and inflammation are always present.

Especially in the early stages of cholangiolitic liver cirrhosis hypercholesteremia is a constant finding. In the later stages when decompensation of the liver develops the hypercholesteremia nearly always makes place for hypocholesteremia. To a certain extent this occurs also in the other forms of cirrhosis.

I fully agree that in the needle biopsies of the liver typical microscopic findings, as Dr. MacMahon has shown, can often be elicited. The specimens obtained with a needle biopsy present, however, only tiny little slivers of the liver. In such a minuscule particle of the liver the two or three portal spaces present may reveal only one type of cirrhosis. If, however, the liver in its entirety can be examined, histologically in different areas of the liver different types of cirrhosis may be encountered.

There are even cases in which the biopsy reveals clear cut cirrhosis, whereas at the autopsy the cirrhosis proves to be only a very discrete process.

CLINICAL ASPECTS OF HEMORRHAGIC GASTRITIS*

O. M. JANKELSON, M.D.

Boston, Mass.

Introduction

Although the clinical picture of hemorrhagic gastritis has not been clearly defined, to the gastroscopist hemorrhagic gastritis presents a definitive appearance. It is characterized by a diffuse, superficial loss of mucosa, manifested by diffuse oozing of blood, mucosal erosions with bleeding, or by multiple superficial ulcerations with hemorrhage. Similar lesions may be produced experimentally[1-5] and may occur in the course of other diseases[6-9]. But here we are concerned with the spontaneously occurring form which is encountered not infrequently clinically.

Clinical Material

The clinical records were reviewed of all the patients with the gastroscopic diagnosis of hemorrhagic gastritis in whom active bleeding was described in

TABLE I

Age and Sex

Age	Males	Females
30-9	1	2
40-9	2	2
50-9	6	
60-9	3	
70-	1	

the gastroscopy report. The patients had been referred from general medical services for the explanation of bleeding of indeterminate origin. There were 17 patients, 13 males, 4 females, 30 to 89 years of age (Table I).

Symptomatology:—The presenting complaints were either the passage of blood in stool or vomitus or those of cerebral anemia, consisting of weakness, fatigue, fainting, and the like. Some attendant gastrointestinal complaints were elicited in 12 of these 17 patients but they were generally nonspecific (Table II).

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From the Gastrointestinal Clinic of the Boston City Hospital, Boston, Mass.

Hematemesis occurred in only 10 of the 17 (Table III). Three patients denied hematemesis but admitted melena. Four denied both hematemesis and melena. Five patients had a past history of gastrointestinal bleeding.

Twelve patients admitted alcoholic intakes but only five were considered to have been heavy alcoholics. In two patients the lesion developed while on an antacid regime with presumably a strict avoidance of alcoholic exposure. In one patient a heavy ingestion of salicylates was noted, but in the remainder such medications were not noted.

Laboratory findings:—Hematocrits ranged from 15 to 42. In 12 of the 17 patients the bleeding was considered severe enough to necessitate blood transfusion. Eight of these 12 required 3 or less units of blood. In general there was a satisfactory response to transfusion, except for 2 patients who continued to bleed for longer than 8 days and 1 patient who had a secondary fall in hematocrit after stabilization following transfusions. Only one patient manifested shock and he required seven units of blood therapeutically, more than the other patients.

TABLE II

GASTROINTESTINAL SYMPTOMS

Epigastric Pain	7
Loss of appetite	3
Heart burn	2
"Heavy" feelings	1

X-rays were performed at least once in each patient. In 14 no lesion to explain the bleeding was demonstrated. In 3 patients gastric ulcers were visualized; 2 of these also had duodenal ulcers. Only 1, however, had a history consistent with peptic ulcer disease. In none of these patients with x-ray demonstrated gastric ulcer was the ulcer seen also on gastroscopy.

Gastric acidity was determined in 11 of the 17 patients. Free acid was present in 10 of the 11, some only after histamine. In the one patient without demonstrable acid only one determination was performed and achlorhydria cannot be considered to have been established.

Gastroscopy:—Gastroscopic examination was performed less than 10 days after admission in 9 patients, between 10 and 30 days after admission in 7, and more than 30 days later in 1. In all these patients, however, active bleeding from the gastric mucosa was visualized. Superficial fissures, erosions, or shallow ulcerations were often seen but were occasionally obscured by blood in the field or on the lens. The extent of mucosal involvement was generally limited, as, for example, to the antrum, the posterior wall, or, in one patient, to the area

surrounding a single superficial ulcer. In only 3 patients was the entire visualized mucosa involved. The uninvolved mucosa was intact, except in 1 patient with a single, discrete, acute ulcer. The uninvolved mucosa was also generally within normal limits, except that hypertrophic gastritis was present in 2 patients and gastric atrophy in another.

Although the process primarily involved the mucosa, changes could be seen in the remainder of the gastric wall. The submucosa was often ecchymotic, appearing as an intensely hemorrhagic area which elevated and flattened out the covering mucosa. The wall of the stomach was occasionally rigid and resistant to inflation with air. When this was combined with mucosal irregularity and nodularity the differentiation from an infiltrative neoplasm was difficult.

The evolution of the lesions of hemorrhagic gastritis was seen in three patients (Table IV). W.B.G. was gastroscoped 4 days after an episode of hematemesis, active bleeding obscured the mucosa. Eight days later bleeding appeared clinically to have ceased but on gastroscopy the mucosa was edematous and erythematous and there were many linear erosions with active oozing of blood. In M.S. active bleeding arose from erosions in an area of nodularity and rigidity. Because of the suspicion of neoplasm gastroscopy was repeated in 10 days: the mucosa in the area of involvement was intact but pale and smooth with residual stiffening. In R.J. hemorrhagic erosions were visualized. Four months later, despite apparent adherence to a therapeutic regime, the erosions were persistent, filled at this time with dark, apparently changed and old blood. Two and a half months later the erosions had healed and the mucosa was intact and normal.

TABLE III

RELATION OF SYMPTOMS AND HEMATEMESIS

	Hematemesis	No Hematemesis
Gastrointestinal Symptoms	8	4
No Gastrointestinal Symptoms	2	3

COMMENT

A fairly consistent clinical pattern appears from these 17 patients. An adult patient, most likely to be male, presents with evidence of blood loss. Neither hematemesis nor melena is universal and in some patients the gastrointestinal tract as the source of the bleeding is not immediately evident. Gastrointestinal symptoms are often present but are generally nonspecific and vague, except for

the not infrequent history of an antecedent episode of gastrointestinal hemorrhage. The blood loss in these attacks is moderate in amount, often requiring few or no transfusions; in rare instances the hematocrit may be depressed to dangerous levels. Occult blood in the stools is a constant finding, however, the demonstration of blood in the gastric aspirate is of greater diagnostic significance for localizing the bleeding site. Free HCl is usually present, although it appears that the lesion can occur in its absence[10]. X-rays are generally noncontributory although incidental abnormalities may be demonstrated and be considered the source of bleeding.

Gastroscopy affords the method of diagnosis. It is preferably done within a few days of the cessation of bleeding. Earlier examination is likely to be handicapped by inadequate visualization due to blood in the field or on the lens. Later examination has been considered likely to fail in visualization of the lesion, since the experimental erosions are known to heal within 3 days[1]. Our experience with the clinical lesion, however, casts doubt on the significance of

TABLE IV

Evolution of Lesions

Patient	1st Gastroscopy	Interval between	2nd Gastroscopy
R.J.	Erosions with bleeding	4 mos.	Erosions with bleeding
M.S.	Erosions with rigidity	10 days	Rigidity
W.G.	Active bleeding	8 days	Erosions with bleeding

this observation since we have been able to demonstrate recognizable lesions as long as 30 days after bleeding had appeared to cease.

The etiology and pathogenesis are obscure and await further studies. Alcohol has frequently been suspected and can produce similar lesions in the guinea pig when given in moderate doses[11]. The high incidence of alcoholism in our patients tends to support this thesis. The lesion, however, has been seen in the nonalcoholic, including two of our patients on an antacid regime. One of these during hospital therapy for an x-ray demonstrated pyloric ulcer developed gastrointestinal hemorrhage and was shown to have hemorrhagic gastritis. In another of our patients there was a history of heavy salicylate ingestion: gastric hemorrhages following salicylates has received much attention in the literature[12,13,14].

Therapeutically these patients present few problems. The bleeding is generally mild and responds to conservative therapy of bed rest, bland diet with

frequent feedings and antacids, and blood transfusions as indicated. Surgical intervention is rarely considered and then only when the diagnosis has been in doubt, when there is a history of repeated bleeding episodes, or when spontaneous cessation of bleeding has been delayed. The role of surgery during the acute phase is limited by the possibility that total gastrectomy may well be required. Interval surgery has been advocated to remove the acid-pepsin factor for whatever part it plays in the pathogenesis. Hemorrhagic erosions, however, have been reported in the gastric stump following subtotal gastric resection[5,15].

There are several problems related to this disease that require further elucidation. Primary among these are the incidence of hemorrhagic gastritis as a cause of upper gastrointestinal hemorrhage and the evolution of the lesions. Only the more liberal use of gastroscopy, especially in the patient without other demonstrable causes, can aid in accumulating the data necessary to answer these problems.

Summary

The gastroscopic and clinical picture of hemorrhagic gastritis has been described. The former is characterized by a diffuse, superficial loss of gastric mucosa, the latter by mild hemorrhage accompanied by unspectacular and nondiagnostic gastrointestinal symptoms. The key to diagnosis and further understanding of the disease lies in the more liberal use of gastroscopy.

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Discussion

Dr. I. Snapper:—Dr. Jankelson brought up the still unsolved problem of hemorrhagic gastritis. It seems certain that this disease may cause upper gastrointestinal hemorrhages, in which x-ray examination fails to reveal any peptic ulceration. In every such case gastroscopy is necessary, and in some cases a hemorrhagic gastritis can be visualized. To complicate matters still more it seems that in certain parts of the world, peptic ulcers of the stomach are frequently preceded by hemorrhagic gastritis—much more frequently than is the case in North America.

Such cases of spontaneous hemorrhagic gastritis should not be identified with postoperative gastritis. We heard yesterday from Dr. Smithwick, that the old concept of the "internal pharmacy" still lives,—in other words that the alkaline bile and pancreatic juice which in the presence of a gastrojejunostomy are introduced into the lumen of the stomach, would cause neutralization of the hydrochloric acid of the stomach and thereby favorably influence the peptic ulcer. This, Dr. Smithwick brought out, could even in subtotal gastrectomy still play an important role in neutralization of the acid remaining in the stump of the stomach. The favorable influence of this internal pharmacy i.e., of the reflux of alkaline juice to the stomach should, however, not be exaggerated. The stomach does not tolerate these alkaline juices too well, and when after a gastroenterostomy, a gastroscopy is performed, extensive gastritis with tremendous mucus formation, evidently due to the influx of bile and pancreatic juice, is usually found.

One hears too much about hemorrhages after excessive use of salicylic acid. The popular story is that sodium salicylate causes the prothrombin to disappear and the prothrombin time to increase. This, however, occurs only exceptionally. Just like Dr. Jankelson, I have never seen a gastric hemorrhage due to salicylate medication, nor did I ever see other manifestations of hemorrhagic tendency due to salicylates.

THE EFFECT OF STEROIDS ON THE GASTROINTESTINAL TRACT*

SEYMOUR J. GRAY, M.D.

Boston, Mass.

About four or five years ago I presented some of our studies on the effects of the adrenal steroids on the stomach. I believe this was at your meeting in Washington. Since then there has been further interest in relating the general endocrine system to the stomach and to gastric activity.

Until recently we thought of the stomach as an organ controlled almost exclusively by the vagus nerve, and considered that all emotional and physical stress was transmitted to the stomach through the vagus. Now we are becoming more and more aware of many complex factors which affect the stomach, unrelated to the vagus nerve or gastric antrum.

I should like to take the ten minutes allotted to me, to give you a thumbnail sketch of the studies we have been carrying out during the last seven years or so.

In the first place, if one stimulates the adrenal gland with ACTH, or administers adrenal steroids, one can produce certain alterations in gastric function which are independent of the vagus nerve or gastric antrum. These effects can be produced in animals with Heidenhain pouches, where vagal and antral influences are absent, and in vagotomized and antrectomized patients.

Following stimulation with ACTH there may be an increase in gastric juice acid or pepsin, a decrease in gastric mucus, or an alteration in the healing rate of small ulcerations. It should be emphasized that *chronic* adrenal stimulation for ten days or more is essential to increase gastric acid or pepsin.

If one stimulates a dog with ACTH, one can produce an increase in the pepsinogen content of the gastric vein blood. These effects are independent of the vagus nerve or gastric antrum.

The administration of ACTH or adrenal glucocorticoids may produce peptic ulcer with hemorrhage or perforation, or may result in the reactivation of a previously healed peptic ulcer. The incidence of peptic ulcer following adrenal steroid administration is about 6 to 7 per cent.

The following additional factors relate the adrenal gland to the stomach and peptic ulcer disease.

1. Patients with Addison's disease practically never develop peptic ulcer disease.

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2. Bilateral adrenalectomy results in a very low gastric secretion in human beings.

3. Bilateral adrenalectomy in animals causes involution of the gastric cells and sharply decreases gastric acidity and pepsin secretion.

4. Finally, if an Addisonian disease patient is given small doses of cortisone, he may develop large gastric or duodenal ulcers.

We have now observed seven patients (and there are many others I have heard about through other physicians) with Addison's disease or bilateral adrenalectomy, who have developed gastric or duodenal ulcers while on small doses of steroids. Studies to date indicate that the stomach of patients with Addison's disease is particularly sensitive to adrenal steroids.

It may be of interest, particularly to Dr. Wangensteen, that patients with multiple endocrine tumors may develop severe peptic ulcer disease. This was discussed the other day in our Panel Discussion on Peptic Ulcer[1], and was first noted in 1902 but recently has been revitalized through the work of Dr. Zollinger and Dr. Ellison. Patients with adrenal hyperplasia, adrenal tumors, pancreatic adenomas, pituitary or parathyroid tumors demonstrate a tremendous hypersecretion of gastric acid and may develop ulcers in the esophagus, stomach, duodenum or jejunum. This again emphasizes the significance of the adrenal and other endocrine systems as they relate to gastrointestinal disease.

One may summarize this by saying that the adrenal hormone is presumably essential for normal gastric secretory activity without which peptic ulcer does not occur. In the presence of excessive adrenal hormone, as stimulated by certain forms of stress, the gastric and duodenal mucosa might be sensitized and excessively responsive to ulcerogenic influences which ordinarily would not induce ulceration. This is in accord with the concept of "permissive action" of the adrenal gland.

Let us look at a few slides to demonstrate these points.

(Slide) Stress is transmitted, we think, by two pathways: 1. from the anterior hypothalamus, directly to the vagal centers and the stomach, and 2. from the posterior hypothalamus to the pituitary and adrenal glands, finally reaching the stomach through this hypothalamic, pituitary, adrenal, gastric pathway.

(Slide) This shows that *chronic* stimulation with ACTH may produce an increase in gastric acid and pepsin. We have found in many instances that seven to ten days will produce no effect. It takes repeated *chronic* stress to produce this effect on the stomach.

(Slide) This demonstrates that the effect of ACTH on gastric pepsin is not altered by vagus section.

(Slide) This is an acute perforation of an ulcer observed three days after major cardiac surgery. We have evidence that surgery stimulates the adrenal gland with a resulting peak outpouring of adrenal steroids between the second and third days following surgery. Recently a report from Philadelphia has noted a significant incidence of peptic ulcer after mitral surgery. Any type of surgery, however, tends to stress the adrenal.

(Slide) Here you see a large gastric ulcer which developed after prolonged ACTH therapy.

(Slide) In a series of 1,343 patients receiving ACTH or adrenal steroids the incidence of peptic ulcer was 6.3 per cent. The ulcer incidence has been reported as high as 30 per cent in arthritic patients receiving adrenal steroids.

(Slide) This is a large gastric ulcer in a young woman with Addison's disease after one and a half years of cortisone therapy. An ulcer of this kind in a young girl would be very rare and rarer still in a patient with Addison's disease. Statistically it is almost outside the realm of possibility for an ulcer to occur in a young girl with adrenal insufficiency, yet it has occurred after a year and a half of small doses of adrenal steroid, again emphasizing the importance of the adrenal gland in peptic ulcer disease.

Briefly, what we are trying to emphasize is the fact that there are many influences on the stomach in addition to those mediated through the vagus nerve, and these involve multiple endocrine organs, among which the adrenal gland plays a significant role.

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THE EFFECTS OF ACTH AND ADRENOCORTICAL STEROID HORMONES ON HUMAN GASTRIC SECRETION*

DAVID A. DREILING, M.D., F.A.C.G.
HENRY D. JANOWITZ, M.D.
and
HAROLD L. ROLBIN, M.D.
New York, N. Y.

A relationship between gastric secretion and adrenocortical activity has been suggested by clinical and experimental data. The clinical evidence is the appearance of peptic ulceration or the exacerbation of ulcer symptomatology and pathology during states of induced hypercorticalism[1-4]. The experimental evidence includes the generally accepted observation of a direct correlation between the blood pepsinogen and urinary peptic activity with the level of adrenocortical activity[5]. Data concerning the direct effect of steroid hormones on the volume, acidity, and peptic activity of gastric juice are few, for the most part deal with long range changes[6], and are discordant in findings[7,8]. The present study was undertaken to determine whether ACTH and the adrenal cortical steroids† are indeed gastric secretogogues, and, whether, in acute experiments, changes in volume, rate of acid, and pepsin secretion could be demonstrated.

Method

The experimental series included 57 patients: 37 of these were without symptoms or evidence of gastrointestinal disease; 14 patients had duodenal ulcers; and there were 6 patients with gastric ulcers.

All the subjects were studied in the fasting state. In order to eliminate the possibility of gastric contamination by reflux of duodenal contents, a gastroduodenal tube was positioned in the duodenum so that pure gastric and duodenal juices were collected throughout the study. Volume flow, free and total acidity, and pepsin concentrations were determined for one hour before and at hourly intervals for 6 hours after the intravenous administration of ACTH (40 mg.), hydrocortisone (100 mg.), or metacortelone (50 mg.). All patients in this series had been previously tested with histamine and disclosed the ability to secrete free acid. Acidity was measured by colorimetric titration to pH 3.5 and 7.0 for free and total acidity respectively. Pepsin was determined by a modified hemoglobin digestion method.

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From the Departments of Surgery and Medicine, and the Gastrointestinal Clinic, The Mt. Sinai Hospital, New York.

†The steroids used in this study were supplied by the Schering Corp.

Results

The results of the study are presented in Figures 1, 2 and 3, wherein the average percentage change in volume flow (ml./hr.), the average free acidity percentage change (mEq/l.), and the average percentage change of pepsin secretion (units/hr.) are indicated before and after the injection of the drug under investigation. The patients are listed in two groups, those without ulcer disease and those with peptic ulcer, either duodenal or gastric. The latter group has not been separated because preliminary inspection of the data revealed no differences in response.

The findings clearly indicate that ACTH, hydrocortisone, and metacortelone produce no demonstrable increases in the rate of volume secretion, acid forma-

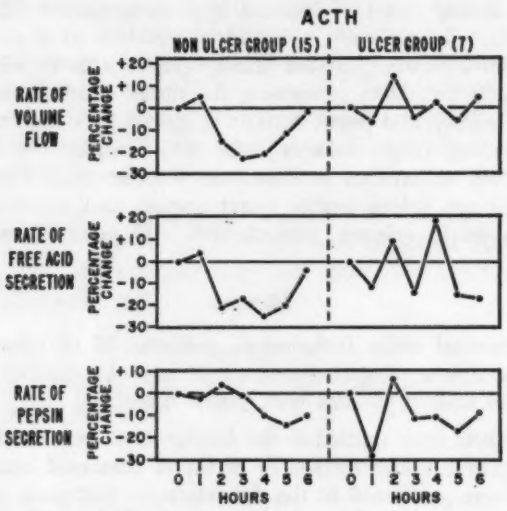

Fig. 1—Average percentage change in rate of flow, rate of free acid secretion, and rate of pepsin secretion following intravenous ACTH in 15 patients without ulcer disease and in 7 patients with peptic ulcer.

tion, or the rate of gastric pepsin secretion over the period of observation for six hours. If anything, the data would suggest a tendency towards diminution in the rate of gastric secretion following the administration of the hormones tested, but the changes observed are not statistically significant.

Comment

As a result of the provocative studies of Gray and his associates who have implicated the adrenal cortex in the etiologic mechanisms of peptic ulcer[6,9,10] and as a result of numerous reports of "steroid ulcer" occurring in patients

under therapy with ACTH or the adrenal hormones[2-4,11], much attention has been focused on the effect of ACTH and the corticosterones on the rate of gastric secretion. Although it is generally accepted that adrenocortical deficiency is attended by a diminution in gastric secretion[12-17], there is considerable diversity of opinion regarding the effects of the administration of ACTH and adrenal steroids on gastric secretion. There are some reports which would indicate that the administration of ACTH and adrenal steroids results in an increase of gastric acid and pepsin[5,10,18,19]. On the other hand, there are other reports which disclose no increase in acid nor gastric pepsin following these hormones[7,8,20-25].

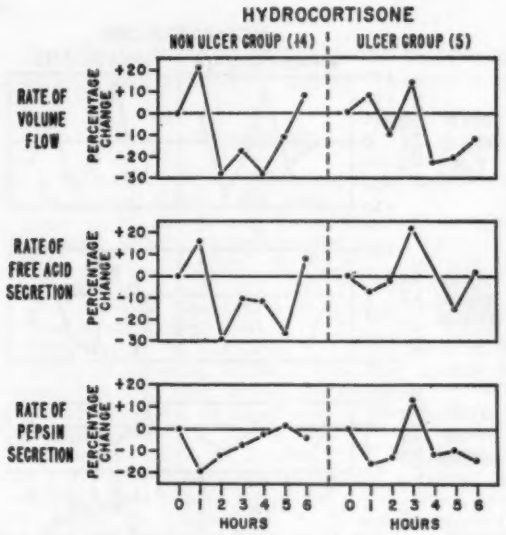

Fig. 2–Average percentage change in rate of flow, rate of free acid secretion and rate of pepsin secretion following intravenous hydrocortisone in 14 patients without ulcer disease and in 5 patients with peptic ulcer.

These experimental discrepancies appear to derive from two factors: 1. the assumption by some that the blood pepsinogen and uropepsin levels may be accepted as direct parameters of the secretion of gastric acid and pepsin[6,9], and 2. the use of data wherein the gastric volume, acid secretion, and pepsin secretion in the unstimulated state and/or following histamine are compared, in patients prior to the administration of ACTH or a steroid, with similar data obtained one or more times several weeks after the initiation of medication[5,6,9,10,18]. In regard to the first factor, the weight of experimental evidence would suggest that while blood pepsinogen and uropepsin grossly change with the direction of gastric pepsin secretion, there is no direct relationship except

in the basal state[30], there may be discordance, and finally there is no direct relationship between these three measures of peptic activity and the rate of gastric acid secretion[20,26-32]. In regard to the second factor, i.e. the comparison of gastric analyses conducted upon the same individuals at different times, the problem of variation inherent in this type of study and, therefore, the statistical significance of the recorded results, is a real one. As Hirschowitz[7] has pointed out, many of the increased values for gastric volume, acid, and pepsin reported to follow steroid administration, fall within the limits of fluctuation of the basal state[5,6,9,18]. Others [19,33,34] have made similar observations. It is of further interest to note that even in the endogenous hypercorticalism of Cushing's disease, evidence of gastric hypersecretion is absent[1].

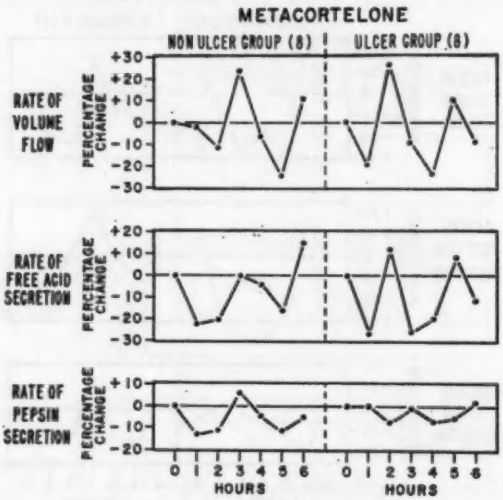

Fig. 3—Average percentage change in rate of flow, rate of free acid secretion and rate of pepsin secretion following intravenous metacortelone in 8 patients without ulcer disease and in 8 patients with peptic ulcer.

The present experimental findings, namely that the intravenous administration of ACTH, hydrocortisone, and metacortelone, failed to produce in a period of six hours any increase in the rate of flow, in the rate of free acid secretion, and in the rate of pepsin elaboration, is in accordance with the results of Hirschowitz et al[7], of Dragstedt et al[8], and of Winkelstein[35], who, in fact, noted occasional decreases in volume and acidity in 20 patients treated with prednisolone for long periods. These results would appear to refute the concept that ACTH and the adrenal cortical steroids are gastric secretogogues in the ordinary sense, but in no way deny the possibility that the gastric secretion is related in some way to adrenocortical activity. Whether the "steroid ulcer" is due to an alteration in viscosity of gastric secretion[7], a diminution of gastric

mucous secretion[7], an alteration in the mesenchymal reparative processes[3,87], or the result of an obscure pathway whereby the secretion of acid and pepsin are augmented during prolonged stimulation by the adrenal cortex, remains an unresolved physiologic problem.

Summary

In an acute study conducted upon 53 patients with and without ulcer diathesis, the intravenous administration of ACTH, hydrocortisone, and metacortelone, failed to produce any increase, during a period of six hours, in the rate of flow of gastric juice, in its free and total acidity, and in the rate of pepsin secretion.

ACTH and the adrenal steroids are not gastric secretogogues. Their role in ulcerogenesis remains unelucidated by current secretory studies.

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Discussion

Dr. I. Snapper:—If I understand correctly a certain amount of difference of opinion exists between Dr. Gray and Dr. Dreiling, both men for whom I have a great deal of respect.

Nobody can deny that the influence of the endocrine glands on the stomach is of the greatest importance. We clearly visualized these interrelationships when about 25 years ago we published several observations of the coexistence of pituitary hypofunction and pernicious anemia. We explained this at the time by the development of a gastric achlorhydria as a result of the pituitary hypofunction. The importance of these clinical observations was recently emphasized by the investigation of Jacobson and his associates on the production of an erythroblastic hormone—erythropoietin—by the pituitary.

As Dr. Gray has emphasized in different diseases ACTH may cause different reactions. This also follows from observations about the influence of corticosteroids on calcium metabolism.

Osteoporosis in the menopause, is due to insufficient formation of bone matrix, i.e. to insufficient synthesis of protein. Since ACTH and cortisone decrease the synthesis of protein by transformation of protein to carbohydrates, postmenopausal osteoporosis is aggravated by ACTH and cortisone. The calcium which is liberated by the daily wear and tear of the skeleton, cannot be redeposited in the absence of bone matrix and is excreted in the urine; hypercalciuria often results.

In other conditions different actions of ACTH and cortisone become evident. Both substances reduce the absorption of calcium from the intestine and therefore *decrease* the hypercalciuria which occurs in sarcoidosis. In other words, endocrine preparations may influence the same metabolic process in completely different directions depending on the diseases in which they are administered. It can therefore be easily understood that there could be differences in the influence of ACTH on the secretion of hydrochloric acid in different diseases.

We must remember that it takes 25 years of observation before the action and the side actions of a drug are completely understood. We gave blood transfusions for 25 years before we understood that transfusions could cause jaundice. We prescribed cinchophen for ten years before we knew it caused liver degeneration, and, of course, we prescribed pyramidon for 25 years before we knew it caused agranulocytosis. It took several years before it was ascertained that administration of dinitrophenol, for years a popular drug to obtain reduction of weight, led to cataract. Thus we cannot yet know all the actions and reactions caused by ACTH and cortisone. The occurrence of cancer in Cushing's syndrome is much higher than in the rest of the population. In addition there are at least five cases of carcinoma of the lung on record which developed Cushing's syndrome. Therefore if we give ACTH and cause hyperplasia of the adrenals with an ensuing iatrogenic Cushing's syndrome, we must be prepared that in 25 years we may think differently about the late side actions of ACTH and cortisone than we do today. Now we must already realize that these drugs

should not be prescribed at the drop of a hat for every little pain in the fifth little finger.

With these considerations in mind I see no fundamental differences between the seemingly contradictory statements of my two friends.

Dr. Seymour J. Gray:—I don't know whether it is proper, but could I have one minute?

Dr. Snapper:—Any number of minutes—we are not so late.

Dr. Gray:—Thank you.

I think that, as we have tried to emphasize, and as Dr. Snapper has pointed out, ACTH is not a secretogogue, and should not be considered in the same category as histamine or mecholyl. Consequently, we should not expect an immediate gastric response. Hormonal endocrine influences don't work that way ordinarily. I have pointed out on numerous occasions, and in all my publications, that acute short-term stimulation with ACTH does not evoke a gastric response.

Dr. Dreiling's studies were carried out over a six-hour period. These steroids were given for six hours—isn't that right?

Dr. Dreiling:—Yes.

Dr. Gray:—In my experience a week's administration of ACTH will not produce a gastric secretory response in most instances. ACTH stimulation for two to three weeks is necessary to produce an effect. ACTH appears to stimulate the stomach more effectively than prednisolone or cortisone.

It may be necessary to evoke the whole spectrum of adrenal activity to simulate the adrenal response to stress. As you know, we don't usually develop peptic ulcer in one day or six hours. We get them usually after chronic, sustained stress.

The same time factor applies to sodium excretion in the urine. If ACTH is administered for a day or two the sodium in the urine decreases, but if it is administered long enough in adequate dosage, sodium diuresis may result. Thus two opposite effects are attained depending upon the duration of adrenal stimulation.

The question about increased gastric activity in Cushing's disease is of interest. In our Cushing's disease patients we have noted an increase in gastric secretion. Moreover, Kyle in England has recently reported an increased gastric secretion in Cushing's disease also. This disease is more common in women than in men, so that the incidence of peptic ulcer in Cushing's disease is difficult to evaluate, particularly since this endocrine disease is really extremely rare.

In regard to the normal variation of gastric secretion from time to time, we have been careful to repeat the basal secretion in each patient two or three times until we get a good baseline. We then stimulate with ACTH for a period of two, or three to four weeks and then repeat the basal secretion after the ACTH has been discontinued. In most instances the gastric secretion returns to control levels. Thus the day to day variation ordinarily would not mean a great deal. In most of our original patients the reported gastric response to ACTH was measured by the same technic as Dr. Dreiling employs, namely basal gastric secretion.

Finally, I have never felt that the acid-pepsin factor was the whole answer to peptic ulcer. There are other factors such as mucus secretion, circulatory effects, and rate of healing. The acid-peptic factor, however, is extremely important since an ulcer developing during steroid therapy, will heal in spite of the continuation of the steroids if the patient is given adequate antacid therapy at the same time. We have maintained patients on cortisone even though they have perforated an ulcer or bled from an ulcer previously, and the ulcer has healed if the patient was given antacids with the cortisone. It is difficult to escape the fact that gastric acid secretion has something to do with peptic ulcer. I agree with Dr. Dreiling, however, that many factors are involved.

We have been giving ACTH intravenously in tiny doses, and we believe that the adrenal response in the ulcer patient is different from that of the normal. Adrenal sensitivity and response to stress may be different in different disease processes and probably varies in different patients. The organ response may also vary from individual to individual. Perhaps that is why some patients develop peptic ulcer, and others do not.

Dr. O. H. Wangensteen:—This has been a very interesting group of presentations. As time goes by, I hope we shall learn a good deal more about the relationship between steroids and the peptic ulcer diathesis, than we know today.

I assume, Dr. Gray, that the parietal cells of the stomachs of patients with Addison's disease must be reasonably normal, or they could not get the secretory responses of which you speak. I have no ready familiarity with this situation —in fact, I was inclined to believe that achlorhydria was not an uncommon accompaniment of Addison's disease. At least every physician knows that people with Addison's disease do not often get peptic ulcers spontaneously. That peptic ulcers have been observed in such patients following the administration of steroids is a matter of great interest.

Elliott (1915), an English observer, and Frank Mann (1917), of Rochester, Minnesota, excised the adrenals of dogs, and reported the appearance of peptic ulcers in many of their animals. I hoped that Dr. Gray would say something about the nature of the origin of ulcers provoked in this manner.

Dragstedt feels that excision of the antrum and division of the vagi precludes the occurrence of any effective stimulus of steroids upon the acid-peptic secreting mechanism. Dr. Gray brings forward evidence to suggest that that is not the case. Many of the so-called abetting factors in the genesis of peptic ulcer fall into the stress category, such as fatigue, cold, anoxia, and hypotension. In the monkey and rabbit in which animals we were unable to produce peptic ulcer by the administration of histamine-in-beeswax, it was found that the simultaneous employment of cold sufficed to bring about ulcer production.

Currently, we are trying to ascertain whether these abetting agencies potentiate the occurrence of ulcer through an effect upon gastric secretion or whether the effect is in part local, owing to concomitant reduction of resistance of exposed tissues to acid-peptic digestion.

For a period of approximately 15 years, my associates and I have been working with aspects of sensitivity of the esophageal epithelium to injury by acid-peptic juice. In 1939, I operated upon a patient who, for a period of more than five years had been dilated in our Out-Patient Clinic for an idiopathic esophageal stricture. In September, 1939, a massive exsanguinating hemorrhage from a bleeding duodenal ulcer required an emergency gastrectomy. Rather reluctantly, the patient submitted to two dilatations in the convalescent period and subsequently refused further dilatations, insisting they were unnecessary. In 1942, a similar situation occurred in another patient, following which experiments were set up to test the thesis that, so-called idiopathic stricture of the esophagus was essentially acid-peptic in nature and was owing primarily to a reflux of acid-peptic juice into the esophagus. Our first deliberate gastric resection for an idiopathic stricture of the esophagus was done in 1944. The improvement was dramatic. A patient with a corkscrew-like structure of the mid esophagus who had been dilated more than 100 times was completely relieved by the gastric resection and two dilatations in the early weeks following convalescence.

It was observed that when dogs were given histamine-in-beeswax intramuscularly, following obstruction of the pylorus by a ligature, severe esophagitis and not uncommonly perforations of the esophagus occurred. Of the juxtalying gastric tissues in continuity with the stomach, the squamous cell epithelium of the esophagus is easily the most vulnerable. In fact, in recent years we have come to employ the cat's esophagus to test the potential digestive power of the gastric juice under varying conditions. We have found that this technic is an excellent method to assess the residual digestive power of the gastric juice, secreted by the stomach, following varying kinds of gastric operations directed at thwarting the ulcer diathesis. Perfusion of the cat's esophagus with gastric juice, obtained from unoperated patients having duodenal ulcer, results in a high incidence of perforation of the esophagus after two hours of dripping. On the contrary, the duodenal mucosa, even when bile and pancreatic juice

are excluded from the duodenal lumen is not injured by prolonged perfusion of the duodenum with gastric juice over a period of several hours.

We are trying to determine whether demonstrated abetting causes of ulcer such as cold, fatigue, and hypotension of hemorrhage effect their role in potentiating ulcer occurrence through the agency of augmenting digestive power of the gastric juice, or whether this effect, in part, is mediated by a lowering of the local tissue resistance to injury by acid-peptic juice. The role of cortisone and ACTH in the peptic ulcer diathesis is being assessed by the same methods. We have been trying to assess the responses of long term as well as short periods of administration of these drugs.

Long years ago, John Hunter asked: "Why does not the stomach digest itself?" The gastric juice of patients with gastric ulcer, ordinarily, has a low digestive power. Yet, as everyone knows, the normal gastric mucosa is extraordinarily resistant to injury by acid-peptic juice. It would appear, therefore, that, a lowering of the threshold to injury by digestive secretion must be an important agency in the genesis of gastric ulcer.

Dr. David A. Dreiling:—Dr. Gray and I fundamentally believe the same thing—that pituitary-adrenal activity is important in the genesis of ulcer and we are both interested in elucidating the mechanism of ulcerogenesis. The present report is one segment of studies attempting to clarify this mechanism. We think we have eliminated any direct stimulatory action, a point which has been made in the literature before. We have also tried to study patients before, during, and after a course of ACTH or cortisone therapy but have run into the difficulty of poor reproducibility of data. Basal secretory studies and even histamine tests have shown spontaneous variations up to 250 per cent. If control studies of basal secretion and the gastric response to histamine show this degree of variation, it is very difficult to prove statistically that the drugs under investigation, even after a long period of administration, do, in fact, increase gastric acid production.

We are not using the extended histamine test, in which tremendous doses of histamine (3.0 mg.) covered by an antihistaminic such as chlortrimeton are used to stimulate gastric secretion. This type of test procedure is believed to induce a maximum gastric secretory response and has been correlated with the maximum parietal cell mass. Preliminary reports from England would suggest that ACTH and cortisone, when administered over a long period of time, do cause an increase in this maximum gastric secretory response.

The adrenal appears to play an important role in gastric physiology but the exact mechanisms remain to be explained.

GASTROSCOPY*

A Second Five-Year Study in a Large General Hospital

E. NED SCHULTZ, M.D.
EDWARD W. HAUCH, M.D.
BALAKRISHNA HEGDE, M.D.
and
GEORGE K. WHARTON, M.D., F.A.C.G.
Los Angeles, Calif.

Introduction

Gastroscopy is often looked upon as a luxury, a research tool, but we wish to report a definitive diagnosis with this procedure.

During the years 1951 to 1956, gastroscopy was performed on 472 patients in a large General Hospital. In our discussion we will present the findings in these cases, as well as correlating them with the previous periods of 1943 to 1948[1], thus this report will summarize approximately 1,000 cases.

General Results

The relative frequency of various diseases encountered in the two five-year studies is revealed in Table I.

Atrophic gastritis was seen less than half as often in the last series, whereas combined hypertrophic and superficial gastritis was seen twice as often. Otherwise the distribution of lesions remains about the same. The sex incidence of two males to every female gastroscoped prevailed in both reports. Seventy-two additional cases were not included in the present series because of lack of patient cooperation or technical difficulties of instrumentation.

Frequency of Gastric Lesion with Age Incidence

Atrophic gastritis occurred in the older age groups of the first five-year study, which is not evident in the second five-year analysis (Table II). Hypertrophic gastritis, however, occurred with increasing frequency in the older age groups in the second five-year review. Preponderance of superficial gastritis in the younger age groups persists in both series.

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From the University of Southern California School of Medicine and the Los Angeles County General Hospital.

Benign Gastric Ulcers

There were 47 cases of benign ulcers. Nine were lost to definitive follow-up.

There were 38 ulcers diagnosed either by the radiologist or the gastroscopist and then confirmed by surgery (Table III). Twenty-nine of these 38 were diagnosed correctly by both x-ray and gastroscopy. Of the four lesions incorrectly reported at gastroscopy, two were malignant, one was a healed benign ulcer, and one appeared normal at surgery, but the pathological report showed definite gastritis. As previously reported this case may have represented a second healed ulcer. Many patients were referred for gastroscopy by the X-ray Department because the findings were inconclusive.

TABLE I

Comparative Frequency of Gastric Lesions for Two Five-Year Periods

Findings	1943-1948		1951-1956	
	Number	Per cent	Number	Per cent
Normals	214	41.3	227	48.1
Superficial gastritis	48	9.2	32	6.8
Atrophic gastritis	69	13.3	25	5.3
Hypertrophic gastritis	32	6.2	33	7.0
Atrophic and superficial	13	2.5	13	2.8
Hypertrophic and superficial	3	0.6	7	1.5
Benign ulcer	41	7.9	38	8.1
Benign polyps	13	2.5	14	3.0
Malignancy	86	16.5	83	17.4
Totals	519		472	

Improvement in diagnosis is apparent when the combined methods of x-ray and gastroscopy are utilized.

Benign Polyps

There were 14 cases diagnosed gastroscopically as polyps. Seven were reported by x-ray. This percentage of correct radiologic diagnosis compares with the first five-year study. The missed radiologic diagnosis were small mucosal polyps.

TABLE II

FREQUENCY OF GASTRIC LESIONS WITH AGE INCIDENCE

Age groups (decades)	II		III		IV		V		VI		VII		VIII		IX		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Normals	1	33.3	5	83.4	26	74.2	52	57.8	49	41.1	45	38.1	42	49.4	7	43.8	227	48.1
Superficial gastritis	1	33.3	1	16.6	8	22.9	12	13.5	5	4.2	5	4.3					32	6.8
Atropic gastritis							7	7.8	10	8.4	5	4.3	2	2.3	1	6.3	25	5.3
Hypertropic gastritis							1	1.1	4	3.4	11	9.3	14	16.5	3	18.7	33	7.0
Hypertropic and superficial gastritis							4	4.5	2	1.7	1	.8					7	1.5
Atropic and superficial gastritis							2	2.2	5	4.2	5	4.3	1	1.2			13	2.8
Benign gastric ulcer					1	2.9	8	8.9	20	16.8	7	5.9	3	2.3			38	8.1
Benign polyps							2	2.2	7	5.9	4	3.4	1	1.2			14	3.0
Malignancies	1	33.3					2	2.2	17	14.3	35	29.6	23	27.1	5	31.2	83	17.4
Totals	3	.7	6	1.3	35	7.4	90	19.1	119	25.2	118	25.0	85	18.0	16	3.3	472	100.0

Malignant Tumors

There were 83 gastric neoplasms. Twenty-three patients were lost to follow-up but the remaining 60 cases were confirmed by surgery or autopsy (Table IV).

All 60 lesions were diagnosed correctly either by x-ray or gastroscopy. Gastroscopy was correct in 43 cases; x-ray in 41 cases; and both agreed on the correct diagnosis in 37 cases. All 17 lesions incorrectly called malignant by gastroscopy were proven to be benign ulcers at surgery. In this series the errors in gastroscopic diagnosis were eight times as common diagnosing benign ulcers malignant as vice versa. This same error was only twice as common in the first study.

The two five-year studies revealed that only 59 of 69 confirmed lesions were diagnosed correctly by either x-ray or gastroscopy in the first study, whereas in the present study all 60 were diagnosed correctly by one or the other method.

TABLE III

Comparison of Diagnosis of Benign Ulcer

	1943-1948		1951-1956	
	Correct	Incorrect	Correct	Incorrect
Confirmed by surgery	37		38	
Either gastroscopy or x-ray	34		38	
Both gastroscopy and x-ray	29	3	29	4
Gastroscopy	33	4	34	4
X-ray	26	11	25	13

In this series all lesions showing any suggestion of malignant characteristics were diagnosed malignant until proven otherwise.

Comment

The incidence of malignancy in other reported series[2,3,4], is 6 to 7.7 per cent, whereas ours is 16.5 to 17.4 per cent. This probably reflects the high incidence of terminal diseases in a large county hospital. Similarly, two of the studies[1,3], revealed a lower incidence of the gastritides. In making the gastroscopic observations of the gastric mucosa, the authors are aware of the fallibility of this procedure when compared to the histopathological findings[5], which in turn have their own limitations.

In respect to visualization and correct diagnosis of ulcers and tumors, we are encouraged by the increasing yield of correct gastroscopic diagnosis[2,3]. Such

recent studies should continue to promote the more frequent use of the gastroscope in conjunction with x-ray; particularly if the x-ray findings are indefinite, or if the x-ray diagnosis does not explain the entire clinical picture and course. Reliable results from teaching clinics with rotating staff members suggests the practical value of gastroscopic diagnosis. This report has shown that gastroscopic examination tends to improve the definitive diagnosis in benign and malignant lesions of the stomach by approximately 30 per cent. Instrument improvement such as the recently introduced fiberscope is a most encouraging advancement[6], as this could possibly simplify the procedure and extend the examination to include the duodenum.

TABLE IV

COMPARISON OF DIAGNOSIS OF GASTRIC MALIGNANCY

	1943-1948			1951-1956		
	Correct		Incorrect	Correct		Incorrect
	No.	Pct.		No.	Pct.	
Confirmed by surgery or autopsy	69			60		
Either gastroscopy or x-ray	59	86		60	100	
Both gastroscopy and x-ray	39	57	10	37	61	6
Gastroscopy	48	70	21	43	71	17
X-ray	49	73	18	41	68	19

SUMMARY

1. Of 472 cases studied gastroscopically from 1951 through 1956, there were normals 227; superficial gastritis 32; atrophic gastritis 25; hypertrophic gastritis 33; atrophic and superficial gastritis 13; hypertrophic and superficial gastritis 7; benign gastric ulcers 38; benign polyps 14; and malignant tumors 83. A previous five-year study (1943-1948) yielded similar totals.

2. In this ten-year study radiologic diagnosis, supplemented by gastroscopic examination, has shown the highest percentage of correct diagnosis in lesions of the stomach.

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Discussion

Dr. I. Snapper:—Dr. Schultz has emphasized the very important role the gastroscope plays in the difficult differential diagnosis between a benign and a malignant stomach lesion. Whether the results of gastroscopy are superior to the data one can obtain with roentgenologic methods is a moot point and depends very much on the experience of the gastroscopist or the roentgenologist. Everybody agrees that the combined findings of history, physical examination, gastric analysis, search for occult blood in the stool, x-ray, gastroscopy, gross inspection of the stomach at operation, are often not sufficient to decide with certainty whether an ulcer is benign or malignant. Only the microscopy gives the final answer.

Therefore, gastroscopy, which certainly is a method which should be generally used, does not alone permit the decision whether an ulcer of the stomach in a patient who is 50 to 60 years old must be operated or not.

I must remind you of the excellent paper about the treatment of gastric ulcer which a distinguished gastroenterologist read to our postgraduate course two or three years ago. This speaker does not subscribe to the idea that every peptic ulcer of the stomach *must* be operated upon and he showed us numerous curves and graphs which indicated that many of his patients actually did suffer from a benign ulcer of the stomach and did not need to be operated upon. At the same time he demonstrated graphs of several ulcer patients he had treated, apparently successfully, for many years until ultimately carcinoma of the stomach developed.

If these cases had not been treated conservatively, but had been submitted to an operation ten years previously when they did not yet have cancer, they might have been better off. This is the reason why in many hospitals every patient with a peptic ulcer of the stomach *must* be admitted to the department of surgery and cannot be admitted to medicine.

Dr. E. Ned Schultz:—I should like to agree with Dr. Snapper. As to the point of our high incidence of correct diagnosis, we attribute this to careful histories and physical examinations, cooperation with the department of radiology and experienced personnel performing the gastroscopic examinations.

Dr. John M. McGowan (Quincy, Mass.):—We are all very happy when we see a patient who has had carcinoma of the stomach go on and enjoy good health for five or ten years after surgery. Achievement in that direction, however, is really very poor. Of those who walk into a physician's office, only 5 per cent can expect to be cured. By herculean effort and possibly juggling of figures, some authorities claim 10 per cent cures in gastric carcinoma. There are 90 to 95 per cent of people who are not helped at all, so that is a very poor showing.

Some day we will probably have a medical cure for carcinoma. Earlier diagnosis with better methods such as Dr. Schultz has shown us is one step in the right direction.

CARCINOMA OF THE COLON*

A. W. ALLEN, M.D.†

and

G. A. DONALDSON, M.D.

Boston, Mass.

Introduction

In recent years, increasing attention has been given in the cancer field to the variation in potential of cells to propagate and invade; and to a second factor of host resistance. The resistance factor is further complicated by the belief that various organs within a host offer varying degrees of resistance. These concepts have been carried so far by some that a cult has developed which preaches that death from cancer is predestined, and the die is cast with the development of the initial cancer cell—so-called *Biologic Predeterminism*. As

TABLE I

Mortality From Carcinoma
(U.S.P.H.S. Statistics—1949)

Carcinoma of:	Deaths	Rate/100,000
Stomach	24,791	17.6
Colon & Intestines	22,949	16.3
Rectum	10,309	7.3
Uterus	16,262	11.8
Breast	18,553	13.3
Lungs & Bronchi	16,660	11.8

you are aware, this thesis has found its way into the lay press, much to the consternation of both laymen and doctors.

It is our contention that this fatalistic attitude is unwarranted. In actual fact, fatality from cancer of the colon can be affected by efforts on the part of the patient and physician. Perhaps the most important single factor bearing on this point is the delay between onset of symptoms and operative intervention. It is obvious to you that this interval can be vastly shortened by an informed public and an alert medical profession. At the present time, too often one or

*Presented before the Course in Postgraduate Gastroenterology of the American College of Gastroenterology, Boston, Mass., 24, 25, 26 October 1957.

†Deceased.

the other or even both of these parties errs for weeks or months before adequate diagnostic studies are undertaken.

It is also our contention that a high resection rate and a low operative mortality further improves the salvage percentage in cancer of the colon. And in order to substantiate this concept, we shall present the evidence available in a consecutive number of private patients operated upon by our surgical group since 1942.

Statistical Results

During this interval, statistics from the United States Public Health Service indicate a relative increase in death rate from carcinoma of the colon. In recent years colon cancer has preceded all other malignant causes of death (Table I). Our own group of cases would indicate an increasingly energetic attack on this disease. Compared with the previous 17 years, seven additional patients out of

TABLE II

Carcinoma of the Colon
1925–October, 1957

Years	No. of Cases	Resection Per cent	Resection Mortality
1925-1942	143	91.0	17.5%
1943-Oct., 1957	433	96.8	3.8%

every one hundred have been operated upon and a resection carried out. The average resection rate for the past 14 years has been 96.8 per cent (Table II).

It is of interest that this increase in resection results from operations done for cure as well as those performed as a palliative measure. One might expect, in a large group of patients coming to surgery after a constant time interval of symptoms, that any increase in resections performed would, over the long run, be accomplished in patients in whom palliation alone might be accomplished. Such is not the case, and the fact that a proportionate number of resections for cure have been possible may indicate that patients as a group are reporting for surgery at an earlier date. In approximately four out of five instances it is possible to plan a type of surgery directed toward a cure (Table III).

In this group of 419 patients, operative mortality has been lowered to 2.1 per cent in those undergoing resection for cure, and to 11 per cent in those with more extensive disease in whom palliation alone has been possible. Since the advent, ten or more years ago, of satisfactory anesthesia, adequate blood replacement, effective antibiotics, and prophylaxis against pulmonary embolism, there has been little change in these mortality rates (Table IV).

Results

One hundred thirty-four cases or 61.8 per cent of the group of 217 patients operated upon as a curative procedure prior to five years ago, remain alive today. Operative deaths numbering five have been excluded from this calculation, but we have chosen to classify all other deaths from whatever cause, many of them unknown, as due to recurrence of cancer. This obviously is not the case, but for the sake of uniformity in classification we believe valid statistics can be gathered only in this way. Furthermore, we believe that nearly all patients alive after five years and free of evidence of recurrent disease will continue to remain healthy. It is a rare individual who, after a five-year interval, will develop eventual recurrence; and in this group of 217 patients only two died of tumor progression after a lapse of five years, and in both instances there was obvious evidence of an enlarged liver at the five-year interval (Table V).

TABLE III

Carcinoma of the Colon
1943—October, 1957
433 Cases

	No. Cases	Per cent
Resection for cure	337	77.8
Palliative resections	82	18.9
Resection rate		96.8
Nonresectable	14	3.3

Table VI indicates the salvage in a group of 82 patients in whom resection was undertaken in the face of distant disease. The trend in recent years is in such a direction, as we have come to realize, that although resection mortality may be high (11 per cent), and the usual respite is short (10 months) a definite proportion live a worthwhile existence for some years. All recover from the operative procedure more satisfactorily following removal of the primary tumor, and it is fair to say that all live more tolerably with the source of blood loss, obstruction, and tumefaction eradicated (Table VII).

Factors Influencing Salvage

In trying to evaluate this problem in regard to improved end-results, it seems that delay between onset and symptoms and performance of surgery is the greatest single factor. The importance of the educational programs now in force in this country for both laymen and the medical profession alike cannot be overemphasized. There has been considerable reaction against these trends on the basis of increased fear on the part of the laymen population. Cancer-

phobia is a natural human characteristic. This may be exaggerated in the minds of a few individuals, but there is real doubt that lay education has increased this significantly. Reassurance that cancer is not present at the time of adequate examination is in fact a great boon to those with the severest anxieties. A recent survey from the University of Wisconsin Cancer Clinic[1] reveals that an overwhelming majority of patients routinely questioned are relieved and not disturbed by cancer educational programs. We therefore believe that any method of obtaining an early diagnosis should be emphasized.

Although an occasional patient may appear who admits to no warning symptoms until a few days before seeking advice and is found to have an uncurable lesion of the large bowel, these fortunately are few and far between. The vast majority of these patients do have symptoms at a time when the true diagnosis can be made, and 78 per cent of them at laparotomy offer a chance for cure (Table III). The responsibility of the physician is great and cannot be overemphasized.

TABLE IV

CARCINOMA OF THE COLON
1943—OCTOBER, 1957

	No. of Cases	Deaths	Mortality
Resections:			
For cure	337	7	2.1%
Palliative	82	9	11.0%
Nonresectable	14	5	35.7%

The patients who repeatedly come with similar complaints over a period of years present our hardest problems. They are most difficult to evaluate, and in fact most often lead us to delay in operation. What are the minimum studies that should be performed at each visit? How often must we do x-ray examinations and sigmoidoscopies? This problem seldom arises in the patient who appears for the first time with complaints that warrant a thorough investigation. We often find that patients have sought advice on at least one and sometimes several occasions, with obvious disease that could have been correctly diagnosed much earlier. We are sure that many such patients have not followed earlier advice about returning for subsequent examinations or actually submitted to the recommended studies. Too often we have listened to the story of apparent neglect; but, as specialists, we should ever be aware of the old dictum, "believe not all of a patient's criticism of his physician".

It does not seem necessary to outline in detail present diagnostic methods at our disposal before members of the American College of Gastroenterology.

Although, you as individuals may vary your technics to some extent, it is doubtful that any of you fail in the basic underlying principles involved. In nearly all patients with cancer of the bowel there are symptoms and signs which lead us to confirmation of the diagnosis by special examinations. In fact, presently, many patients are referred by general practitioners with the correct impression of the true nature of the lesion. These and many others that materialize after

TABLE V

RESULTS OF RESECTION FOR CURE
1940—OCTOBER, 1952
217 CASES SURVIVING OPERATION

Shortest Survival	2 months
Longest Survival	17 years
Five-year Survival	61.8% (134 Cases)

suitable studies present only the problem of early and adequate surgery (Table VIII).

Over this interval of study, evidence has accumulated incriminating certain lesions of the colon as precursors of cancer. Certainly, the individual with one carcinoma is worthy of regular follow-up study, extending over years. As long ago as 1952, Rankin[3] indicated that such patients were ten times as likely to

TABLE VI

RESULTS OF PALLIATIVE RESECTION
1943—OCTOBER, 1957
82 CASES

Shortest Survival	1 mo.—Local spread from sigmoid.
Longest Survival	5¼ yrs.—Liver metastases from splenic flexure
	5⅛ yrs.—Local spread from sigmoid. Postoperative X-ray Rx.
Average Survival	10 mos.
Died in Hospital	9

develop another cancer as were the normal colon group. Although we subscribe to this danger, it is questionable whether total or near-total colectomy, as suggested by some, with its added morbidity and mortality is justified on this basis alone; and in most instances semiannual and later annual check-up examinations will suffice. Polyps too should be considered premalignant, we believe. Multiple polyps in particular should be treated by total colectomy, and most specimens

so resected show an added bonus of additional polyps not defined by the barium enema. Similarly, one or more unsuspected polyps are found in one-third of the specimens of colon resected for obvious carcinoma. Finally, chronic ulcerative colitis must ever be held under suspicion as a cancer precursor. Adequate evidence is now available to indicate that the likelihood of cancer development is directly related to the length of time the colitis has existed. In no instance at the Massachusetts General Hospital has a patient, operated upon for carcinoma of the colon developing in an area of chronic ulcerative colitis, remained alive without evidence of recurrent disease for more than one year. Certainly, if salvage is to be increased, our efforts should be directed toward eradication of those lesions which may exhibit early stages of malignancy or have clinically proven potential to do so.

TABLE VII

TOTAL FIVE-YEAR SALVAGE
CARCINOMA OF THE COLON
1940–OCTOBER, 1952
304 CASES

	Cases	Alive 5 Years	Per cent Salvage
Operative Deaths	21	0	0
Nonresectable	9	0	0
Resections for Palliation	57	2	3.5
Resections for Cure	217	134	61.8
Total	304	136	44.7

The extent of resection is, at the moment, undergoing scrutiny by all abdominal surgeons. Over the past half century the local excision of a carcinoma of the bowel by exteriorization methods has been gradually changed. Regional lymph nodes have been included in the resection for more than two decades, and primary anastomosis after resection has completely replaced the Bloch-Paul-Mikulicz-Rankin types of operation. Studies revealing a higher spread to the inferior mesenteric vessels has lead to a trend toward routine left colectomy for all lesions on this side of the bowel. Contact spread has become a part of a well planned resection for cure and we have ample evidence of the rationale of this procedure. Actually, in many of our cases we have removed, *en bloc*, contact organs in a large number of patients and in 84 per cent of these we have classified them under the curable group[3]. Suggestion has been made that subtotal colectomy with anastomosis of the cecum to the rectum is advisable in some cases. We are not convinced that routine left colectomy is desirable. The three or four per cent increase of patients that might be cured if this were done may

well be offset by the added risk. In feeble, elderly, and in obese patients, one might do well to weigh the advantages of this procedure against a segmental resection. In our own patients we have found that about half of them appear for treatment with negative lymph nodes. Certainly in this half, one would not enhance the chance of cure by a more radical operation. We have for years, done complete left colectomy when the lesion was located between two of the usual segments and also when the left colon was further complicated by extensive diverticulitis. We have been disappointed in our attempts to resect the aortic nodes and believe this extension of the operation is seldom justified.

Blood vessel invasion by the tumor is also a live subject. This has varied greatly, by different observers, on resected or autopsy specimens from 38 to 51 per cent[4]. In the routine case we may find liver metastasis from a small low

TABLE VIII

FACTORS INFLUENCING SALVAGE
CARCINOMA OF COLON

1. Delay to Operation
2. Awareness of Premalignant Lesions
   a. Previous Colon Cancer
   b. Colon Polyps
   c. Ulcerative Colitis
3. Resection Rate
4. Improved Operative Technic
   a. Extent of Resection
   b. Prevention of Cell Spread
5. Use of Nitrogen Mustards (?)
6. Lowered Mortality

grade tumor. These are in fact the most disappointing findings in the whole group of patients that we have treated. Why do some tumors skip their natural filters, the lymph nodes, and travel through the venous drainage of the involved area? At this time there appears to be an unsalvagable percentage of cases that unfortunately include some whose symptoms are of short duration. So far, none of the adjunct agents available offer any reliable aid. Long respites have been observed in the presence of extensive liver metastasis. This is quite different from liver spread in cancer of the stomach and pancreas. Therefore, palliative resections in cancer of the colon are justified, since removal of the tumor area is the best treatment for this obstructing type of lesion. Our worst results in life expectancy have come from our inability to ascertain, early in the operation, that the spread was at that time out of bounds. The primary ligation of the veins draining the area of carcinoma in the colon is definitely worthwhile and should be done in all cases when the liver is not obviously already invaded.

Since we have practiced this precaution for only two or three years, we have no statistical evidence of the benefit that might be derived from such precautions. We do feel that our five-year salvage rate of 62 per cent in our resections for cure probably refutes some of the high percentage estimates of spread through the veins during manipulation of the tumor at the time of operation.

Local implantation of tumor cells at the suture line is a definite hazard. Whenever the location of the tumor permits, heavy ligatures well proximal and distal to the primary growth as an early step in the operation, should be done. We have in the past used clamps across the bowel for this purpose but lately have adopted Cole's suggestion of a heavy ligature[5]. Umbilical tape seems to be ideal for this procedure. In perforated carcinoma one is faced with the problem of dealing with residual tumor cells that have possibly leaked into the surrounding areas.

TABLE IX

FIVE-YEAR SALVAGE
CARCINOMA OF COLON

	Series A	Series B
Delay to Operation	4 months	7 months
Resectability	97%	81%
Operative Mortality	3.8%	4.2%
Five-year Salvage	45%	32%
Five-year Salvage when operated "for Cure"	62%	51%

Experimental work on transmissible rat tumor cells by Cole[6] and his coworkers have led them to feel that human cancer cells may well be killed by nitrogen mustard. Although this remains to be proved in cancer of the colon spread, the trend will be to use these substances in the hopes of improving our present results. Kredel[7] has suggested that occasions arise when irrigation of a possibly implanted field with dilute nitrogen mustard may be worthwhile. In those instances of previous perforation or of known implants too wide-spread for removal, this use of nitrogen mustard appeals to us.

Meticulous technic and freedom from gross contamination is essential for good immediate results and lowered morbidity. Chemotherapy and antibiotic agents should be used only for their additional benefits and not as a substitute for the most careful surgery possible. Quarantine drapes with frequent changes are important. The discarding of gloves and contaminated instruments, especially after the anastomosis is made, are imperative routines. Delayed closure of the abdominal wall is so successful in obtaining primary healing that we still use it in the majority of colon resections. No septic wound has been seen except

in two instances when frank abscess formation was present at the site of the lesion. Dehesence is avoidable on the basis of carefully placed wounds, accurate suture, and nasal catheter decompression. Deaths from leaking suture lines, hemorrhage, and sepsis are now unknown. Pre- and postoperative care and better anesthetic methods have further reduced the complications so frequently seen in former years.

It is obvious that in any individual patient with carcinoma of the colon many factors affect the possibility of cure. Most of these are difficult or impossible to evaluate, and any concise measurement of any one factor in a large group of patients is inaccurate. As noted before, however, a few facets of this problem can be concretely tabulated; and we have had access to two series of cases where a few variants are known. Almost certainly, the other numerous factors enumerated above have not remained as constants in these two groups, and this comparative study indicates only a trend rather than accurate fact (Table IX). Operative mortality can be proven to have been a constant; and the disparity in end result, as indicated earlier in this paper, is most strikingly affected by the greater resection rate and earlier operation in our series, as compared to the lower resection rate of 81 per cent and three-month longer interval between onset of symptoms and definitive operation in Series B.

Summary and Conclusions

Early diagnosis and early radical surgery is the important keynote in elevating the cure rate in cancer of the colon.

Preliminary ligation of the venous drainage from a lesion offers an additional preventive measure against the spread of cancer during operation.

Ligatures around the bowel well above and below the lesion is the most logical method of reducing the chance of implantation of tumor cells in the anastomotic line.

Meticulous technic must be of primary importance. Chemotherapy and antibiotics are not a substitute for this under any circumstances. If intelligently used before and after operation they reduce morbidity.

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Discussion

Dr. I. Snapper:—If I understand correctly, the tables which were projected, showed a better survival rate of patients with cancer of the colon who had waited for four months against patients who had waited for seven months before they submitted to operation. Is it not true that a carcinoma may be present for a considerable time before the patient even starts complaining? The months (or years?) of symptomless development would have to be added to the four and seven months' waiting period demonstrated on the tables, before far reaching conclusions can be made from the interesting material presented.

Many surgeons are of the opinion that carcinoma of the colon readily develops in a case of ulcerative colitis. The malignancy would take issue from the "polyposis" which is a complication of the later stages of the ulcerative disease. This then is compared to the tendency to carcinomatosis existing in the congenital polyposis of the colon. Here the paucity of clear cut semantics in medicine is the cause of misunderstanding. Familial polyposis is actually an adenomatosis of the colon and the congenital adenomas cannot be compared with the hypertrophic tags of the mucous membrane which are designated as polyposis in longstanding ulcerative colitis.

As far as I have seen, the patients who suffered at the same time from ulcerative colitis and carcinoma of the colon had actually congenital adenomatosis with secondary ulcerative disease. On the other hand an ulcerative colitis does not necessarily protect against carcinoma as proven by carcinoma of the descending colon in patients whose ulcerative colitis was limited to the ascending colon only.

All this is also the reason why not too rarely patients who previously were operated for carcinoma of the colon, after a few years develop ulcerative colitis. All these patients were operated for a *polypoid* carcinoma. There usually were more "polyps" i.e., adenomas, in the resected specimen present. The ulcerative colitis which develops a few years later can often be found to consist of ulcerative processes developing within the adenomas present in the part of the colon which has been left behind—a true secondary ulcerative colitis.

There are many cases of ulcerative colitis where resection of the colon is indicated. The danger of carcinoma development in ulcerative colitis, however, should not be alluded to in order to persuade patients that an operation is necessary.

Dr. O. H. Wangensteen:—Dr. Donaldson's diagram emphasizing the salient points in diagnosis properly alluded to the finger, the proctoscope, the barium enema, including air-contrast studies.

Since 1940 in this country, cancer of the colon and rectum have claimed more lives than any other cancer. This statement holds also for 1955, the last year for which vital statistics for the country as a whole are available.

The Metropolitan Life Insurance Company reported not so long ago that, during the past ten years there has been a 30 per cent decrease in mortality from cancer of the cervix amongst female policyholders of their company. This is indeed a very significant accomplishment in the fields of diagnosis and therapy of cancer. This achievement is due solely to early recognition and treatment, made possible by speculum examinations and cytologic studies.

As Dr. Donaldson showed, approximately 75 per cent of all cancers of the colon and rectum are within reach of a 25 cm. sigmoidoscope. If a method could be devised to make a painless proctoscopic examination, a great deal could, I am certain, be done to persuade patients to return regularly for this examination, which looms so important in the recognition of cancer of the rectum and the lowest segment of the colon. Pain and discomfort are understandable deterrents to ready capitulation to annual examinations of this sort. Some effective means of producing a brief period of analgesia, which would not interfere with the examination, could come to have great significance for earlier detection.

Ever since Dr. George Moore, now director of the Roswell Park Cancer Hospital in Buffalo, observed while he was a surgical intern at the Medical School of the University of Minnesota that, brain tumors had a special affinity for fluoresceine—ever since then, members of the Department of Surgery have these many years been working away intermittently to try to find some device which would help in detection of cancer of the alimentary tract. Radioactive iron might be such a tool. The loss of radioactive iron in the stool in control experiments of dogs with a normal alimentary tract indicate that geiger counts on the feces three weeks after intravenous injection of the iron check well with normal background counts. If the radioactive iron is injected intravenously approximately three weeks before the counts upon the stool are to be made, it would appear that counts in excess of the normal background would suggest the presence of a source for alimentary tract bleeding. Moreover, even 2 c.c. of blood removed by needle puncture from a vein of an animal into which radioactive iron had previously been injected—this amount, when fed to a normal dog, can be detected by geiger counts—an occurrence which suggests the method will detect minute amounts of bleeding. Such a method, if clinical tests substantiate these observations, could come to have real importance in the detection of asymptomatic cancers on the mucosal surfaces of any excretory channel of the body, including: alimentary tract, lung and bronchi, urinary and genital tracts.

Dr. Marvin Gliedmann of Dr. Dennis' clinic in Brooklyn pointed out, at the recent meeting of the Surgical Forum in Atlantic City, the cancericidal

effects of Chlorpactin when applied locally. His paper would suggest that surgeons would be well advised, when operating for cancer which had found its way to the serosal surface of the colon or stomach, to apply swabs immersed in this solution around the lesion being removed to reduce the opportunity for contamination of the peritoneal cavity by cancer cells. Gliedmann also advises that the peritoneal cavity be irrigated, before closure, with a dilute solution of Chlorpactin.

The question of venous invasion by cancer of the alimentary tract has recently come into prominence again. That one can find cancer cells in the bone marrow or in the blood in patients who have a cancer of the alimentary tract is, of course, a discouraging finding. It would appear, however, that inasmuch as many patients in whom such findings have been demonstrated are being cured by surgery, there is no direct correlation between demonstration of such cells and ultimate recovery.

It is my feeling that surgeons, who affect a special interest in cancer of the colon, will presently come to do a near or subtotal colectomy as the primary operative procedure. This operation has been standard procedure for cancer of the colon on my service since 1946.

The operation which I would elect to do by choice for a cancer located somewhere between the lower reaches of the sigmoid colon and hepatic flexure would be to excise all the intervening colon, together with the lymphatic drainage area, anastomosing the ascending colon, a few centimeters distal to the ileocecal valve to the upper rectum or to the iliac colon a few centimeters beyond the sacral promontory. For cancers of the ascending colon or cecum, in which it becomes necessary to sacrifice some ileum to encompass the lymphatic drainage area of the ileocecal angle, it becomes incumbent upon the surgeon to remove varying lengths of the ileum, a circumstance which would not encourage the surgeon to perform a primary total colectomy, unless the excision of ileum involved only a few (10 cm. or less) centimeters. The ileum and the right colon constitute the water wringer of the alimentary tract. It is these two segments of the bowel, which are largely responsible for removing the last traces of water from the feces, making for a dry stool. For cancers of the colon proximal to the hepatic flexure in which segments of ileum more than 10 cm. in length are excised, I am disposed to make the anastomosis between the ileum and the lower portion of the S-curve of the sigmoid colon. Unlike the patients who undergo near total colectomy for cancer distal to the hepatic flexure, in whom persistent diarrhea is not observed, patients who undergo lesser excisions of the colon for cancers proximal to the hepatic flexure in whom sacrifice of as much as 30 cm. or more of ileum is necessary occasionally—such patients usually have a temporary period of diarrhea.

It is in the colon too that the promise of the second-look procedure has been the greatest. Since 1948, we have been re-exploring patients who, at the

first operation, were found to have lymph-node involvement. At intervals of six months such patients are subjected to reoperation. It would appear that about 15 per cent of such patients in whom residual cancer is encountered at the first reoperation can be converted, through the agency of the second-look procedure, to become cancer negative. This is a small but very definite accomplishment for it concerns patients who otherwise obviously would die of cancer.

It perhaps is not out of place for me to say a few words about preparation for colectomy. Our standard preparation for colectomy is cleaning of the colon by the administration of enemas, the night before and the morning of surgery. No intestinal antibiotics are given prior to or following the operative procedure; nor do we purge the patient. It is my feeling that a well-performed closed anastomosis is the important desideratum. I conventionally open the anterior row of sutures before tying them to take a peek inside to see whether the mucosal apposition in the posterior suture line is adequate. Occasionally it becomes necessary to place a few stitches of interrupted silk in the posterior row. The gloves, needles and needleholders used in this procedure are then discarded.

If the medical profession could write upon a program directed at early recognition of cancer of the colon and rectum, such efforts, I feel certain, would yield usurious dividends in salvage of lives from cancer.

Dr. Gordon Donaldson:—I have little to add except to say that never do I fail to be stimulated by Dr. Wangensteen's remarks, and I want to thank him for them. Near-total colectomy and the second-look operations must be regarded critically. I do not believe they should be undertaken by all surgeons. The results will have to be tabulated carefully, and at a later date we should have factual data from such experts as Dr. Wangensteen.

INTESTINAL OBSTRUCTION*

JOHN J. BYRNE, M.D.†

Boston, Mass.

Intestinal obstruction is a constant challenge to the physician. In my experience, it is one of the most commonly misdiagnosed and mistreated of all surgical conditions. Not only is the wrong treatment given to the wrong case, but often the right treatment is given at the wrong time. There are many ways

Fig. 1—Flat abdominal plate of functional ileus showing diffuse pattern of distended large and small bowel.

of presenting this subject, but I prefer to present it from the point of view of pitfalls in diagnosis.

There are four conditions which make up the entire picture of intestinal obstruction: *functional ileus, large bowel obstruction, strangulation obstruction,* and *small bowel mechanical obstruction.* They have separate causes and treat-

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†Director, Third (B.U.) Surgical Service and Research Laboratory, Boston City Hospital; Professor of Surgery, Boston University School of Medicine.

ments and have characteristic histories, physical signs and x-rays. Since it is well known that our errors are usually those of omission, if we constantly think of these four complexes in cases of suspected intestinal obstruction, we are less apt to make a wrong diagnosis.

Functional Ileus

The causes of functional ileus are many (Table I). There is usually the history of the primary disorder plus a gradual onset of abdominal distention and absent bowel sounds and bowel movements. Physical examination will display distention and often a rectal examination will show a dilated rectal ampulla. The flat x-rays are fairly characteristic revealing a diffuse large and

TABLE I

Functional Ileus

Trauma:–*Peritoneal*–as postoperative. *Extraperitoneal*–as with fractured ribs, spine or pelvis.

Infection:–*Peritoneal*–as with appendicitis, acute cholecystitis. *Extraperitoneal*–as with pneumonia, septicemia.

Irritating Peritoneal Fluids:–Bile, gastric juice, pancreatic exudate, urine, blood, etc.

Metabolic Disorders:–Uremia, acidosis, electrolyte abnormalities, vitamin deficiencies, hepatic coma, carcinomatosis, shock.

Neurologic Causes:–Spinal cord trauma or other diseases.

Retroperitoneal Diseases:–Genitourinary, aneurysm, etc.

Edema:–Hypoproteinemia, angioneurotic edema, cardiac decompensation.

Spasm:–Lead poisoning, morphinism, porphyria.

small bowel pattern (Fig. 1). Often a pocket of gas may be seen in the rectal ampulla.

The primary disorder must be treated–such as appendectomy for appendicitis, chemotherapy for infection, etc. The distention is combatted with intubation by the use of an intestinal tube and a rectal tube. Electrolyte and fluid balance is corrected, of course, and occasionally cholinergic drugs such as prostigmine may be cautiously administered.

There are several pitfalls to be avoided in diagnosing this condition:

In the first place, the relief of functional or paralytic ileus may be heralded by gas pains associated with hyperperistalsis and be confused with mechanical small bowel ileus. At times, the x-rays at this stage may even look like such.

Secondly, paralytic ileus may mask an underlying obstruction. This is particularly true when the obstruction is of the strangulating variety which is usually associated with a paralytic ileus picture.

Thirdly, and most important, the paralytic ileus may precipitate a mechanical obstruction by producing a twist or kink at a natural fixation point of the large bowel or a partially occluding adhesion of the small bowel. Not only may this latter kink or twist, but pressure of the distended bowel on the adhesion may produce edema or even necrosis (Fig. 2).

Large Bowel Obstruction

Large bowel obstruction is usually caused by cancer followed by diverticulitis, volvulus fecal impaction, and numerous miscellaneous conditions (Fig 3).

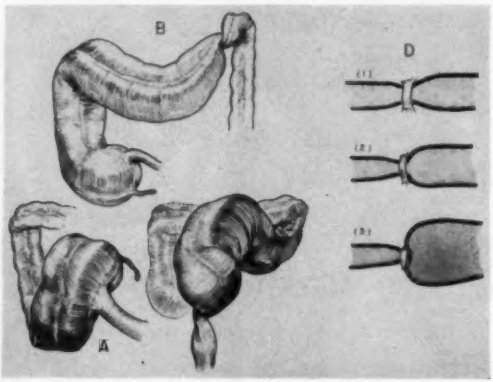

Fig. 2—Paralytic ileus may precipitate mechanical ileus by causing a kinking or twisting of bowel at the site of a natural fixation point (A. Cecum, B. Splenic flexure, C. Sigmoid flexure) or a partially obstructing adhesion of small bowel (D). Not only may this latter kink or twist, but pressure of the distended bowel on the adhesion may produce edema or even necrosis.

There is a history of gradually increasing abdominal distention with absent bowel movements. Occasionally this may be heralded by crampy hypogastric pain, however, this is often absent. Physical examination will reveal distention, and bowel sounds may be heard. X-ray reveals a dilated large bowel pattern (Fig. 4). Treatment is immediate operative decompression with transverse colostomy or cecostomy as indicated. Generally, the transverse colostomy is more adequate in cases of left colon obstruction, with the cecostomy being necessary in obstructions of the transverse colon or right colon. In very sick individuals, the cecostomy may be done under local anesthesia with a minimum of trauma.

Pitfalls are numerous. In the first place, operative decompression should not be procrastinated for danger of cecal perforation. Although attempts have been made to correlate the cecal size with the incidence of perforation, this is not reliable. Also, we have seen death from large bowel obstruction without perforation in people who have chronic heart disease or arteriosclerotic heart disease. I believe they are due to a type of vagal reflex such as one might see with distention of any viscus.

Secondly, although the aim of treatment in most cases of large bowel obstruction is decompression with subsequent repair of the causative lesion, the various types of large bowel volvulus require immediate repair. The two com-

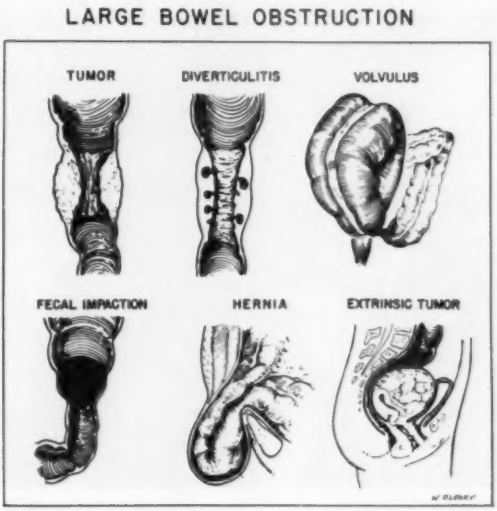

Fig. 3—Causes of large bowel obstruction. Cancer, by far, is the most common agent followed by diverticulitis and volvulus. The remaining causes are rare.

mon types of volvulus, ileocecal (Fig. 5) and sigmoid (Fig. 6), can be diagnosed on a flat plate.

A third pitfall is the occasional attempt to intubate large bowel obstruction. The place of intubation is merely a pre- and postoperative adjunct and obviously cannot decompress the large bowel.

Another danger is the fact that barium enemas occasionally will be difficult to remove from the intestine. It is my feeling that barium enemas should not be done as a routine procedure in such cases, but only when they are necessary for exact diagnosis. Such enemas may rarely perforate the colon with a subsequent high mortality rate.

Finally, the presence of an incompetent ileocecal valve may mask the symptomatology and give rise to a small bowel mechanical pattern with periumbilical crampy pain and high pitched bowel sounds, and x-rays will demonstrate distended small bowel in addition to the distended cecum. The latter, however, is the tip-off which distinguishes such cases from small bowel obstruction.

Strangulation

Strangulation means devitalization of small or large bowel. There is usually the history of sudden onset of severe continuous abdominal pain which may

Fig. 4

Fig. 5

Fig. 4—Abdominal flat plate of large bowel obstruction showing distended cecum, ascending and transverse colon.

Fig. 5—Abdominal flat plate of ileocecal volvulus showing distended cecum rotated to left with loops of small bowel at normal site of cecum.

radiate to the back. Vomiting may develop at once. The patient becomes ill sooner than other patients and may exhibit shock with low blood pressure, rapid pulse and peripheral ischemia. The most common physical sign is tenderness either at the site of a hernia or abdominal scar. The tenderness also may be felt on rectal or vaginal examination in cases of gangrenous intestine deep in the pelvis. Bloody exudate may stain the skin over the hernia or other areas such as the umbilicus or lumbar triangle. A peritoneal tap may reveal the bloodstained fluid; however, the procedure is seldom necessary for diagnosis. Laboratory data may confirm the inflammatory process with a rising leuco-

cytosis, pulse rate and temperature. Treatment is urgent surgery with intubation used as a preoperative and postoperative adjunct. In general, the strangulated area is reduced and if not viable is resected. Emphasis is placed in the postoperative state on intestinal decompression and chemotherapy.

The most dangerous pitfall with strangulating obstruction is the general conception that one should expect a small bowel mechanical pattern on x-ray. It is well known that this is seldom present since with the onset of strangulation there is usually a paralytic ileus. Sometimes, all that one might see on a flat plate of the abdomen is the air filled, closed strangulated loop (Fig. 7).

Fig. 6

Fig. 7

Fig. 6—Abdominal flat plate of sigmoid volvulus showed distended sigmoid rising out of pelvis toward diaphragm and then curving back to fixation point of descending colon. Proximal colon and cecum usually dilated due to obstruction produced by the volvulus.

Fig. 7—Abdominal flat plate of strangulation. Usually one sees pattern of paralytic ileus but occasionally the strangulated bowel may be seen as an isolated distended loop.

Another pitfall is the occasional temporary relief of intubation which lulls the physician into a sense of false security and permits the strangulated intestine to go on to nonviability.

Thirdly, the small hernia which produces strangulating obstruction is often overlooked. Too often, there is a tendency on the part of the examining physician to look for the hernia sites and not to feel for them. Small tender lumps in the region of the femoral canal are strangulated hernias unless proven otherwise.

Fourthly, one may reduce gangrenous bowel while attempting to manipulate incarcerated hernias.

Small Bowel Mechanical Obstruction

The usual causes are hernias and adhesions. In the absence of these one must think of tumors, inflammations, enteroliths and congenital disorders (Fig. 8).

There is a typical history of periumbilical or generalized abdominal crampy pain. Vomiting occurs soon if the obstruction is high, and late if the obstruction is low. Physical examination may reveal distention, high pitched and frequent bowel sounds and, in late cases, palpable loops of intestine due to the edema

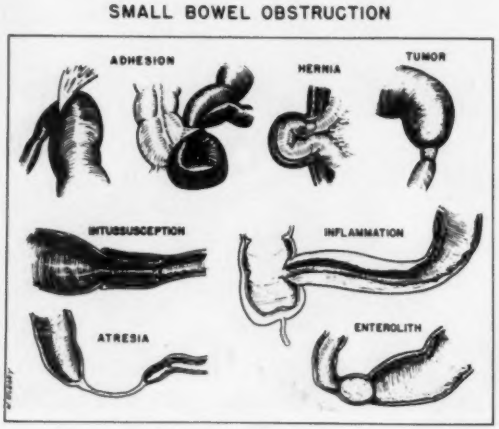

Fig. 8--Causes of small bowel obstruction. Adhesions and hernias make up the great majority. In absence of hernias or abdominal scars, think of tumor, inflammation, enteroliths and congenital abnormalities.

of the bowel. The causes of the obstruction should be searched for in each hernial ring (inguinal, femoral, obturator, lumbar, epigastric). X-ray findings demonstrate the typical ladder pattern of dilated small bowel loops (Fig. 9). Occasionally, a barium enema may be needed to rule out large bowel obstruction, but an upper gastrointestinal series should never be performed. Surgery is the treatment of choice with intubation only an adjunct to proper surgery. After fluid losses are corrected, necessary surgery is performed. Early cases will be operated upon sooner because the period necessary to restore the patient to his normal physiological state is less than in late cases where a longer time may be necessary to restore water and electrolyte loss and correct other associated visceral abnormalities.

Pitfalls are many. Procrastination and prolonged intubation may result in the patient being sicker by the time surgery is performed than previously. Even simple mechanical obstruction can become strangulating due to patches of gangrene on the antimesenteric portion of the bowel in prolonged cases of obstruction, particularly where there has been delay in treatment. The partial obstruction produced by Richter's hernia is difficult to diagnose and often the x-ray pattern is similar to a paralytic ileus rather than a mechanical obstruction. In such cases, however, there will usually be tenderness at the site of the hernia, and again we should remember not to look for the hernial rings but to feel for them. Another pitfall is the danger of the *en bloc* reduction of an incarceration

Fig. 9—Abdominal flat plate of small bowel obstruction showing laddering of distended small bowel.

where—although the hernia disappears from view—the obstruction continues due to a tight peritoneal ring. In rare cases the obstructed small bowel will be distended almost solely by fluid and exhibit no typical gas pattern. It is also well to remember that at the time of obstruction the distal intestine may contain feces, so that bowel movements can occur after the onset of obstruction.

Summary

The four basic states: functional ileus, large bowel obstruction, strangulation and small bowel obstruction should be thought of and carefully appraised

in all cases of suspected ileus. There are various pitfalls with each condition which may trap the unsuspecting clinician. Awareness of these will make the diagnosis and hence the treatment more certain.

Discussion

Dr. O. H. Wangensteen:—The difficulty of differentiating sharply between spastic and mechanical ileus is a problem known to all of us. Moreover, in many of the distentions attending sympathetic nervous imbalance, features of both the spastic and the paretic varieties may occasionally overlap. Today, when sympathetic blocking agents are given frequently to patients for the relief of hypertension, it is necessary to be alert to the occurrence of ileus as a complication of that therapy. Patients arriving at the hospital with abdominal pain and distention may have a paretic bowel, which usually responds remarkably to treatment with an indwelling long tube.

My feeling is that if one cannot make a satisfactory diagnosis, in a given situation, the surgeon would be well advised to operate. In the ultimate analysis, apart from the periodic thrusts of the peristaltic rushes, the end effects of paralytic and mechanical obstruction upon the bowel wall are pretty much the same. In other words, great distention, because of the increased intraluminal pressure retards venous outflow and if long continued puts a strain upon the viability of the intestinal mucosa even though the observed pressures in the distended small intestine, in such cases, rarely exceeds 15 cm. of saline solution. In mechanical obstructions of the colon, on the contrary, I have observed a pressure as high as 52 cm. of saline solution. Such high pressures are owing to the circumstance that the ileocecal valve and sphincter behave like a check-valve, permitting fluid and gas to enter, but not to leave the colon. In instances of paralytic ileus, where operative decompression has been done for great distention, we have found the intraluminal pressure in the distended colon to be unusually less than 10 cm. of saline solution. Nevertheless, I have the definite feeling that, for all varieties of paralytic ileus, save that attending peritonitis, more lives will be saved by operative decompression than by allowing great distention to go unrelieved for long periods of time. Moreover, when a decompressive vent is made in the presence of great gaseous distention, all the surgeon needs to do at operation following insertion of the catheter is to press upon the external abdominal wall with his hands. An immediate and startling deflation occurs. It is interdispersion of gas and fluid which defeats the surgeon in trying to accomplish the same end operative by nonoperative means rendering suction alone ineffectual.

A problem which concerns the surgeon who affects an attitude of treating some patients with intestinal distention conservatively is to encourage descent of the tubes. With the Grafton Smith device it is possible in almost all instances, despite the presence of great distention, to get the tube past the duodeno-

jejunal angle almost immediately. There it lies often for long hours, however, while the surgeon waits expectantly, only to have his hopes unrewarded. We need to develop technics to augment the rate of descent of long intestinal tubes down the intestine. When such a device or technic is available to us, use of the indwelling tube to combat intestinal distention will be enhanced considerably.

Dr. John J. Byrne:—I should like to thank Dr. Wangensteen for his remarks. I was particularly interested in the comment on hypotensive drugs. We will have to keep our eyes open for that. He is certainly correct about the position of relief in strangulating obstructions which is characteristic about the pain. We have seen that.

It is well to remember that fecal vomiting doesn't always mean intestinal obstruction. If you have a patient with definite fecal vomiting and the flat plate shows you do not have intestinal obstruction, there may be an artificial connection—gastrocolic fistula.

So far as leucocytosis goes, it is no help to us, and we practically always have to rely on our objective findings.

ANORECTAL INFECTIONS—PATHOGENESIS, CLINICAL MANIFESTATIONS*

GASPAR ANGELO, M.D.

Cambridge, Mass.

The treatment of anorectal inflammatory disease is based on the understanding of the pathogenesis of anal infection. A definite sequence of events takes place involving anatomical structures, as the anal crypts, the anal ducts and preformed glands, the blood vessels and lymphatics.

The anal ducts of Morgagni, 8 to 12 in number, are sulci behind valves at the mucocutaneous junction. At the base of the crypts there are connecting duct-like structures, either simple tubules or complex ducts that communicate in turn with small glandular tissue—the preformed glands. These are of paramount importance in the spread of infection.

The anal papillae are tooth-like projections situated between the anal valves giving the irregular appearance to the area known as the dentate line or the pectinate line or as the mucocutaneous junction. This is one of the most important clinical areas in proctology. At this line five systems separate: The blood supply, the epithelium, the nerve supply, the musculature and the lymphatic drainage.

Nesselrod convincingly divides anal infections into three stages:

First, the role of the anal crypts:—The infectious material, i.e. the stool enters the anal crypt, acting as a funnel, is transmitted to the anal duct, and thence to the anal intramuscular gland. Microscopically, there is noted marked infiltration of round cells in the tissue immediately surrounding the openings of the anal ducts. Very little edema in these areas could readily occlude the duct with the resultant retention of infectious material within.

Second, the invasion of the perianal and perirectal tissue:—This may occur directly via breaks in the gland-duct structures, or by the indirect route through the blood vessels and lymphatics. The lymphoid tissue noted in the area denotes strongly the close relationship between the glandular structures and the anal lymphatics.

Third, the various clinical manifestations of anal infections as:

1. Cryptitis and papillitis.
2. Fissure-in-ano and anal ulcer.
3. Perianal and perirectal abscesses.

*Presented before the Course in Postgraduate Gastroenterology of the American College of Gastroenterology, Boston, Mass., 24, 25, 26 October 1957.

4. Fistula-in-ano and rectal fistula.
5. Hemorrhoidal disease.
6. Anal stenosis.

These entities in the evolution of anal infections will be discussed in more detail.

Cryptitis and Papillitis

Cryptitis may be an acute or chronic inflammation of the crypts of Morgagni. It often produces symptoms greatly out of proportion to its apparent importance. The acute process will at times cause severe lancinating or burning pain, most troublesome at defecation. Because of the accompanying sphincter spasm digital examination and instrumentation may be impossible without anesthesia. Usually there is a redness at the crypt opening with granulation tissue, edema and even pus may be seen exuding. This is usually the first step in the formation of the fissure, the abscess or the fistula. The chronic variety manifests itself usually with a hypertrophied papilla and an increased depth of the crypt. Reflex phenomena are common in these patients, as dysuria, retention of urine, pain in legs, and many times flatulence. Cryptitis and papillitis may cause a crawling sensation and a feeling of uneasiness. One patient described it as having "ants in his pants".

It has been our experience that most patients with this condition who require surgery have other pathology in addition and require more radical surgery than a cryptectomy or a papillectomy. The deeper pathology in the anal ducts and glands and accompanying fissure and hemorrhoids require excision. In the mild forms palliative measures as hot Sitz baths or compresses and proper attention to bowel habits may be effective.

Fissure-In-Ano

A true fissure-in-ano may be acute or chronic. It is described as a linear tear in the anal canal. In 90-95 per cent of our male patients it was found in the posterior commissure, and in the anterior commissure in 5-10 per cent of women that have had children. The severity of the symptoms are out of proportion to the size of the lesion. The pain is one of the most severe the human body may suffer. The pain occurs at defecation, it decreases with relaxation of the sphincter and then increases as the muscle becomes spastic, thus irritating the lesion. Failure to understand the pathogenesis accounts for the many poor results in its treatment. In its evolution a fissure is usually preceded by an inflammation of the crypt and the anal glands and ducts. In its healing, fibrous tissue is deposited forming an inelastic scarring in the area of anatomic muscular weakness—the posterior commissure. Recurrences take place with the trauma of the passing stool. Sequella are the sentinel pile, the hypertrophied papilla, anal stenosis, abscess and ultimately an anal fistula.

Proper treatment for a fissure-in-ano will give the most gratifying results. A fissure found in a region other than in the classical posterior or anterior areas should be cause to suspect tuberculosis, chancre, chancroid or malignancy. Small uncomplicated fissures will heal with palliative therapy. The chronic fissure, especially that which includes the typical triad of a sentinel pile, anal ulcer and a proximal hypertrophied papilla can be permanently cured only with adequate surgery. The ulcer must be dissected and the wound extended to one inch distal to the anal verge. A posterior sphincterotomy is performed to relieve muscle spasm and to drain the deeply infected areas.

Perianal and Perirectal Abscesses

Further development in the pathogenesis of infection will lead to abscess formation. Pyogenic organisms from the bowel content gain entrance to the perianal and perirectal tissues. The abundance of areolar tissue, the blood vessels and the surrounding spaces render this region peculiarly susceptible to abscess formation. Anatomic variations, the virulence of the invading organisms and the proper treatment are responsible for the clinical course and manifestations of the inflammatory process.

Abscesses of the anorectal region are divided into those above and those below the levator muscles.

1. Infradiaphragmatic abscess.
   a. Perianal abscess.
   b. Ischiorectal abscess.
2. Supradiaphragmatic abscess.
   a. Submucous abscess.
   b. Perirectal abscess.
   c. Retrorectal abscess.

Less frequently abscesses may arise from outside the anal canal from hair follicles, apocrine glands, trauma, cysts, prostate and from other local structures. Symptoms and signs are generally the same as those of abscesses in other parts of the body. Usually there is a very tender swelling at the anal verge associated with heat, induration and edema. Too many complicated fistulas result when physicians administer sulfanomides or antibiotics over long periods of time while the local pathology is still intact. These agents are ineffective unless the abscess is first drained. The patient is warned that when only incision and drainage is done a fistula will recur requiring future excision.

Fistula-In-Ano—Anorectal Fistula

A fistula-in-ano is a pathologic tract between the anus and the perianal skin, the end result of a contracted abscess. There is a primary opening (point of origin) and a secondary opening (point of exit). Morgan describes a very

practicable classification of fistulas based on the relationship of the main tract to palpable landmarks.

1. Subcutaneous and submucous fistulas. These make up about 5 per cent of the total. They are of no surgical importance to the anal musculature.

2. Fistula-in-ano. The main tract is situated above the subcutaneous external sphincter, making up 90 per cent of the total incidence.

3. Anorectal fistula (5 per cent). The main tract lies above the level of the anorectal ring. The main tract of a fistula-in-ano extends radially to the anal canal, while that of an anorectal fistula extends deeply into the ischiorectal fossa, and parallel to the anus and rectum.

Many vain attempts to cure this condition are chiefly due to failure in finding the primary internal opening at operation. The entire tract should be excised and saucerized to create a flat wound. Long standing fistulas may become malignant. A complicating adenocarcinoma was present in six of our patients with fistulas of long standing.

Hemorrhoidal Disease

Hemorrhoids are localized varicosities of one or more radicals of the hemorrhoidal plexus of veins.

Nesselrod postulates that the principal cause of hemorrhoidal disease is anal infection. The infection in the ducts and preformed glands attack the thin walled venous structure of the hemorrhoidal plexus. Thus, there occurs a periphlebitis, endophlebitis with resultant infected varices. Contributing etiologic factors are heredity, occupation, portal obstruction and pregnancy. Approximately one-half of the patients seen in our private proctologic practice have hemorrhoids, as the primary diagnosis.

Hemorrhoids are classified as external or internal and combined external and internal. The external thrombotic hemorrhoid is really a perianal hematoma. Bleeding is the presenting symptom, usually bright red. Hemorrhoids are the most common cause of rectal bleeding and often will cause severe secondary anemia. Too often patients are submitted to repeated, complicated and expensive examinations, and even to an exploratory laparotomy uselessly, when a properly performed anoscopy would have revealed the cause of bleeding.

Protrusion is noted with the more advanced hemorrhoids and many require manual replacement. Pain is not a common symptom with hemorrhoids. It occurs with an acute prolapse, with the accompanying external thrombosis, edema and congestion. Treatment may be by palliation, by injection therapy or by radical surgical repair. Asymptomatic hemorrhoids require no treatment. During an acute attack bed rest is prescribed and hot wet packs are applied until the condition subsides. Only uncomplicated internal hemorrhoids are

amenable to injection treatment. This form of treatment is also applicable to patients with bleeding hemorrhoids who refuse surgery and in those that present definite contraindications for surgical management. This sclerosing therapy is not without danger. Berkowitz reported a case of fatal generalized anaphylactic reaction during a course of injection treatments. The patient had become sensitized to the solution used.

The goal of adequate surgical treatment should be not only the complete removal of all external and internal hemorrhoidal tissue, but also should include the obliteration of all portals of anal infection, such as anal crypts. Postponing a hemorrhoidectomy in patients with gangrenous, ulcerated, septic prolapse has greatly reduced the incidence of inflammation, delayed healing and metastatic infection, especially to the liver. We find the dissection-ligature method for hemorrhoidectomy very successful and well suited to the anatomic variations.

Anal Stenosis

Anal stenosis is an important sequel of anorectal infection. There occurs a scarring or the formation of fibrous tissue in the region of the anal canal secondary to chronic inflammation. Anal contraction can be either congenital or acquired. The acquired stenosis can also be caused by injuries, by surgical procedures and by the addiction to laxatives and mineral oil. Forceful dilatation of an anal stenosis is to be condemned as it fails to correct the underlying deformity and creates unnecessary trauma. The surgical correction of the contracture is done by sectioning the annular scar radially at one or more points. The causative crypts should also be located and exteriorized. Meticulous postoperative care will give an ideal end result.

Summary and Conclusion

The treatment of anorectal inflammatory disease is based on the understanding of the pathogenesis of anal infection. Infectious material enters crypts, to anal ducts and glands, rupturing the perianal and perirectal tissues, and ultimately the formation of the various manifestations, namely: fissures, abscesses, fistulas, hemorrhoidal disease and anal stenosis. The symptomology and therapy of these are discussed briefly and kodachrome slides are shown.

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Discussion

Dr. John M. McGowan (Quincy, Mass.):—Dr. Angelo has proven to us that one can come out in front from working behind. While he is at the tail end of the program, where he is mostly in his work, what he has just presented is 'way out in front.

In training programs today in surgery, it is easy to train general surgeons to perform gastrectomies, take out half a liver, do open cardiac surgery. Many times anorectal surgery is pushed into the background. Often general surgeons come to grief in this type of surgery.

Prior to 1938 the incidence of surgical infection was 7 per cent. With refined methods and antibiotics, infections were greatly reduced. With increased use of antibiotics strains of bacteria have developed which are resistant to antibiotics, especially the ubiquitous *staphylococcus hemolyticus*. Once more the incidence of infections have become 7 per cent. Anorectal abscesses are again appearing, and, therefore, Dr. Angelo's discussion of the fundamental principles in opening of these abscesses is very timely.

Bleeding in hemorrhoids is important because blood is the symptom of cancer. The hemorrhoids must be stopped from bleeding.

Several years ago I saw an 83-year old lady with bleeding hemorrhoids. After injection of hemorrhoids, the bleeding continued. X-ray study of the colon showed a carcinoma of the descending portion.

Every case of rectal bleeding must have a proctoscopic examination and x-ray of the colon. If nothing is found except bleeding hemorrhoids, the bleeding must be stopped. The hemorrhoids must be treated. If the bleeding continues, then the patient must be re-examined and eventually, if necessary, explored surgically.

With reference to fistula-in-ano, chronic fistula, over many years, may develop squamous carcinoma, with its origin at the inner end of the fistula.

CLINICAL OBSERVATIONS WITH BEPHAN SPACETABS

A New Prolonged-Action Anticholinergic-Antacid in the Treatment of Gastric and Duodenal Ulcer, Gastritis, Hypersecretion and Hyperacidity

SAMUEL WEISS, M.D., F.A.C.G.
JEROME WEISS, M.D., F.A.C.G.
BERNARD WEISS, M.D.
and
RAFAEL B. ESPINAL, M.D.
New York, N. Y.

Medical management of gastrointestinal disorders often associated with hyperacidity and variously described as "burning" or "gnawing", has long centered around the use of neutralizing agents. Numerous antacids, singly and in combination, have been employed for this purpose, but it has long been obvious that in themselves, they do not constitute adequate therapy. This deficiency is apparently due to the fact that much of the antacid is wasted because it leaves the stomach too quickly to react adequately with, and neutralize, the stomach acid.

Grossman has correctly suggested that greater therapeutic benefit could be obtained if the rate of transport of antacids from the stomach were reduced. The goal of retaining the antacids in the stomach for longer periods of time led to the formulation of BepHan Spacetabs*, a new prolonged-action anticholinergic/antacid preparation which we have studied over the past 14 months. The anticholinergic, Bellafoline, is incorporated in an inert binder to extend its antimotility activity. This is intended to delay gastric emptying, which will facilitate reaction between the antacids and the stomach acid, and thus obtain more sustained and efficient neutralization.

A sound rationale for this combination is derived from the studies conducted by Kirsner and Palmer. They found that gastric acidity was most completely controlled when atropine was combined with alkali and that the addition of atropine permitted the effective use of smaller amounts of alkali. They attributed this greater effectiveness to the reduction in volume of gastric secretion and to the prolongation of gastric emptying time produced by atropine. Kramer and Ingelfinger have shown that the duration of action of Bellafoline is twice that of atropine and this has been further extended by incorporating it in a sustained-action medium.

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*A product of Sandoz Pharmaceuticals, containing aluminum hydroxide glycine, 450 mg.; magnesium oxide, 60 mg., and Bellafoline, 0.5 mg. in retardant binders.

This preparation was subjected to a thorough clinical evaluation to determine its usefulness in the treatment of hyperacidity, heartburn, gastric and duodenal ulcer, as well as in reflex manifestations due to functional and/or organic involvement of the liver, gallbladder and intestines. To date, we have employed BepHan Spacetabs in 158 patients, of which the following are representative:

Case Reports

Case 1:—W. H., male, age 58. Seen first in September 1954, complaining of pain and tarry stools.

Previous history:—In 1951, he had undergone an operation for a "ruptured duodenal ulcer". In December 1952, he developed pain in the right upper quadrant of the abdomen and noted tarry stools. He was x-rayed at that time and told that his ulcer had become active again and was advised to have a subtotal resection of his stomach, which he refused.

Physical examination revealed marked tenderness in the upper abdomen and a postoperative hernia. Weight, 120; blood pressure, 120/62.

Fasting gastric analysis:—Free HCl, 65; total acidity, 82; occult blood, +; mucus, 1+; urine, negative. Blood count—Hgb., 84 per cent; R.B.C., 4,710,000; W.B.C., 6,250; polys., 66; lymphocytes, 28; eosinophils, 1; monocytes, 4 and basophils, 1. Stool after 3-day meat-free diet was positive for occult blood. Patient was placed on a regimen of diet and medication and was not seen again until March 1955. Though he had no gastric symptoms, he had observed blood in his stool. Weight, 124¼ pounds; blood pressure, 110/80; hemoglobin, 78 per cent; stool—hard; occult blood with guaiac, +. Rectal examination revealed an internal congested hemorrhoid and superficial anal fissure, the source of the blood.

April 1955, weight, 127 pounds; blood pressure, 120/80; stool negative for occult blood; hemoglobin, 80 per cent. December 1955, stool again tarry; hemoglobin, 78 per cent. Patient still refused surgical intervention, and was not seen again until February 1957. He complained of weakness, apprehension and fear that he would develop a hemorrhage and cancer.

Weight, 138 pounds; hemoglobin, 83 per cent; blood pressure, 130/75; stool negative for occult blood.

Fasting gastric analysis:—Free HCl, 80; total acidity, 110. Patient was advised to enter the hospital for further study and treatment. In the hospital he was on a modified Sippy regime, antacids and sedatives. After eight days he asked to be discharged from the hospital. At home he continued his diet and medication but with little relief. Heartburn, eructations and constipation continued.

A fasting gastric analysis again showed free HCl, 80 per cent; total acidity, 98 per cent; occult blood, negative. He was instructed to take one BepHan Spacetab at eight-hour intervals.

When he took three BepHan Spacetabs daily there was marked dryness of the throat and some blurring of vision. After three days, he noticed marked reduction of the heartburn and was now able to sleep through the night. Gradual reduction of the Spacetabs to one after breakfast gave him relief for the entire day.

Ten days later the patient's fasting gastric analysis showed free HCl, 15; total acidity, 35. There had been no sour eructations, no heartburn and no nocturnal disturbance in the previous week.

In order to test the validity and results of the BepHan Spacetabs, a placebo was substituted without the patient's knowledge. Forty-eight hours later he telephoned that the heartburn had returned, could he come in to speak to us. A fasting gastric analysis again showed increased acidity. There was no occult blood. The original BepHan Spacetabs were given to him; the heartburn was relieved and sour eructations disappeared shortly.

Re-x-ray of the stomach and duodenum showed less gastric hypersecretion and less irritability and spasm of the duodenal cap. He was given a bland diet with instructions to take a BepHan Spacetab if and when heartburn and sour eructations occurred.

This patient showed an excellent response to this therapy. Dryness of the throat occurred when three tablets were taken initially but this was no problem with the smaller dose.

Case 2:—H. C., female, age 60, weight, 138; blood pressure, 110/70. Consulted us on September 1956, complaining of nausea, bitter taste in mouth, incomplete bowel evacuations, and some emotional upsets.

Physical examination:—Liver, 1½ finger breadths below right costal margin; abdomen distended; hemorrhoids. Hemoglobin, 76 per cent; urine, negative; stool—occult blood, negative, undigested food particles.

Fasting gastric analysis:—Free HCl 93; total acidity 105; bile, ++; occult blood, ++.

X-ray examinations:—Gastrointestinal series, negative; gallbladder shows hydrops. Refused surgery at that time.

A prescription for effervescing sodium phosphate was given, two teaspoonfuls in a half glass of hot water one-half hour before breakfast. She was told to follow a liver and gallbladder diet. For the nausea, hyperacidity and sour eructations, she was instructed to place one BepHan Spacetab in her mouth and allow it to disintegrate slowly. Ten days later, a fasting gastric analysis showed

free HCl, 79; total acidity, 87. The patient reported relief of nausea and only occasional heartburn. At this time she underwent a cholecystectomy. On the fourth postoperative day, patient again complained of heartburn and sour eructation. A gastric specimen was obtained, showing free HCl, 72; total acidity, 90. One BepHan Spacetab was given to be dissolved in the mouth and a specimen aspirated 3 hours later showed free HCl, 32; total acidity, 40. Symptoms were relieved. After a normal postoperative course, the patient was discharged in ten days. At last report she is doing well and uses BepHan Spacetabs only occasionally. This patient derived much comfort from these tablets which so quickly relieved her episodes of heartburn.

Case 3:—L. G., male, aged 46, weight, 219½; blood pressure, 144/82. Consulted us December 1956, complaining of pains in the abdomen and shooting to the back and a sensation of warmth, seasonal in character (September to April), although it did occur during off season when he was upset. Heartburn is worse at night and keeps him from having a good night's rest. Smokes 3 to 5 cigars daily. When the pains occur takes Demerol, codeine, or atropine orally. Previously Pro-Banthine gave him relief. He was x-rayed before consulting us and told that his gallbladder does not visualize and that the gastrointestinal series show no pathology.

Physical examination:—Obese individual, difficult to elicit definite tender areas in the abdomen. Rectal sphincter tight; anal irritation and pruritus. Urine, negative; stool, foul, occasional vegetable fibers; hemoglobin, 96 per cent; R.B.C., 5,230,000; W.B.C., 9,800; polys, 52; lymphocytes, 48; coagulation time, 4 minutes; bleeding time, 5 minutes; platelets, 200,000+.

Blood chemistry:—Blood sugar, 145 mg. per 100 c.c.; blood cholesterol, 197 mg.; uric acid, 2.85 mg.; thymol turbidity, 1-2; cephalin flocculation, 1+ in 24 hours and 2+ in 48 hours; icterus index, 4-6; sedimentation rate, 15 mm. in 60 minutes; Mazzini, negative; E.C.G., negative.

Fasting gastric analysis:—After much difficulty duodenal tube was passed and gastric contents aspirated. Free HCl, 62; total acidity, 87. No occult blood and no food residue.

Fluoroscopy and roentgenography:—Heart, lungs and esophagus negative. After ingestion of 6 tablets of Telepaque and 3 capsules of Monophen, faint visualization of a highly situated, calcified gallbladder. No gallstones, however, were visible (this does not rule out their presence). Patient's weight dropped to 212 pounds, he has no complaint regarding heartburn or sleeplessness when he follows the prescribed diet and use of the BepHan Spacetabs, when necessary.

Case 4:—M. S., male, 61 years of age, weight, 119 pounds; blood pressure, 118/72. We saw this patient first in August 1956, at which time he reported vomiting "acid" and food. Lately, he had noticed red and very dark material in

the vomitus even when food was not present. Patient said that he had had an ulcer for many years but that he now felt worse than at anytime before.

Physical examination:—Dehydrated individual with marked distention, visible peristalsis and succussion in the stomach. Urine, negative; stool, traces of occult blood on meat free diet.

Fasting gastric analysis:—Free HCl, 90; total acidity, 113; bile; mucus; blood and numerous erosions.

The stomach was lavaged several times and then fluoroscoped and x-rayed. Following the x-ray examination, the patient was hospitalized, and placed on orange juice, milk and gelatin mixture, intravenous glucose feedings and vitamins. He could not tolerate anticholinergic preparations since they caused urinary disturbance, dry throat and eye blurring. Aluminum gel with milk of magnesia given daily through duodenal tube, relieved symptoms. On the fifth day, cooked cereal, stewed fruit, vegetable purée were added and tolerated.

On leaving the hospital, he showed free HCl, 15. He continued in better health, when suddenly he complained of severe pain and collapsed. He was returned to the hospital and was operated on for ruptured duodenal ulcer. On discharge from the hospital, he again complained of severe heartburn and pain but no vomiting. BepHan Spacetabs were prescribed and provided good results. At his last office visit 16 July 1957, he still continues on a Meulengracht diet and BepHan Spacetabs supplemented by aluminum gel with milk of magnesia during periods of exacerbation. A subtotal gastrectomy was advised.

Case 5:—S. B., male, 38 years of age, suffers from migraine headaches.

He had been told previously, after x-ray examination, that he had a duodenal ulcer. He did not respond to treatment and was re-examined in another hospital where he was gastroscoped and told that he had gastritis, and possibly an ulcer.

We saw this patient in October, 1956, weight, 153; blood pressure, 135/72. Hemoglobin, 83 per cent; Urine, negative; stool, foul, undigested food; occult blood, negative.

Fasting gastric analysis:—Free HCl, 69; total acidity, 85; mucus. X-ray examination of the gastrointestinal tract shows gastritis, hypersecretion, diverticular ulcer of the duodenum, and duodenitis.

He was placed on a regimen of one BepHan Spacetab every eight hours. Seven days later, fasting gastric contents showed a great amount of mucus and less acidity. Patient was told to continue diet and tablets and to add aluminum gel and milk of magnesia mixture if necessary. About six weeks later, patient became upset and began to vomit again. A fasting gastric analysis on 19 December 1956, showed free HCl, 75; total acidity, 104. On 26 December 1956, another fasting gastric analysis revealed free HCl, 68; total acidity, 86; mucus; bile; no

blood. Patient was advised to enter the hospital, but refused. In this case, the BepHan Spacetabs relieved the hypersecretion and hyperacidity for a period of six weeks until an emotional upset occurred. This is a diverticular type of ulcer which is best treated surgically.

Case 6:—S. P., female, age 59, weight, 117½; blood pressure, 120/82; seen in October 1956. She had had a hysterectomy in 1939 and hemorrhoidectomy in 1941. She smokes moderately, complains of indigestion, bitter taste in mouth, belching, constipation, and cannot sleep. She cannot eat fat or fried foods and has lost about 3 pounds in a year's time. She has been treating herself with antacids and cathartics.

Physical examination:—Definite gallbladder tenderness, as well as tenderness over abdomen in general; internal hemorrhoids.

Urine, negative; hemoglobin, 90 per cent; stool, foul, vegetable fibers, moderate mucus; occult blood, negative.

Fasting gastric analysis:—Free HCl, 52; total acidity, 64; occult blood, negative.

Fluoroscopy and x-ray examination:—Atonic gallbladder, spastic and irritable duodenum, no definite ulcer crater observed.

Felt better and had much less gastrointestinal distress with one BepHan Spacetab at 10-hour intervals, but had to discontinue its use because of dry throat and blurred vision.

Case 7:—H. F., male, age 39, weight, 172; blood pressure, 114/78. Had had gastrointestinal series, E.C.G. and stool examination previously and was told that he had a "spastic stomach".

He consulted us in October 1955, complaining of occasional nausea, epigastric pain, burning sensation under xyphoid, radiating to back. He had recently regurgitated some undigested food.

Physical examination:—Gallbladder and epigastric area tender on palpation.

Urine, negative; hemoglobin, 81 per cent; R.B.C., 4,090,000; stool, well digested, negative for occult blood.

Fluoroscopy and x-ray examination:—Small gastric ulcer (high on cardia); gallbladder negative. The esophagus showed a patent cardiac orifice permitting regurgitation (esophagitis). Regimen of diet and BepHan Spacetabs, one to be dissolved in mouth at 8 to 10-hour intervals, was outlined. Recheck on 1 November 1956, revealed that symptoms had disappeared almost completely and that ulcer showed signs of healing.

Case 8:—R. L., female, age 35, weight, 134½; blood pressure, 120/80. This patient had many complaints, heartburn, sour and bitter taste in mouth, consti-

pation, and internal (female) complaints for which she was under the care of a gynecologist. She brought in films taken elsewhere. These showed duodenal irritability and spasticity. No definite niche or crater was seen.

Physical examination:—Tenderness over the entire abdomen, especially the lower part of descending colon. Urine, negative; blood count, normal; stool, occult blood, negative; blood sugar, 90; cholesterol, 200; Mazzini, negative.

Fluoroscopy and x-ray examination:—No definite ulcer seen in stomach or duodenum. Sigmoidoscopy, mucosa is hyperemic, granular, with no definite bleeding areas nor blood seen coming from above. Barium enema shows haustrations absent in descending colon, diverticulum above sigmoid area.

Bland diet and avoidance of all roughage was recommended, plus one or two BepHan Spacetabs daily. Sesame oil instillation into rectosigmoid daily for 3 or 4 days, to be retained as long as possible, was also advised. Her gastric symptoms and spasm in the colon were markedly relieved by the BepHan. Normal bowel movements obtained. When last seen in March 1957, she was maintaining good progress and asked for more BepHan Spacetabs.

Case 9:—H. S., male, age 32, weight, 183; blood pressure, 120/85. Complained of pain in abdomen and chest. His sister had several bleeding episodes because of duodenal ulcer. He is constipated, cannot sleep, worries, smokes 2 packs of cigarettes daily. When upset, regurgitates sour-tasting liquid. Has a distinct fear of cancer.

Physical examination:—Tenderness over entire abdomen; hyperesthesia; rectal examination negative.

Urine, negative; stool (meat free), occult blood, positive; hemoglobin, 86 per cent; R.B.C., 4,330,000; W.B.C., 8,600; polys, 58; lymphocytes, 42.

The patient refused a gastric analysis. Fluoroscopy and x-ray examination shows spasm of the lower end of esophagus and definite duodenal deformity (ulcer) and a cascade stomach. In December, he was started on BepHan Spacetabs and a modified ulcer diet. He was advised to give up smoking and to reduce. He returned in March feeling well and reported that he had experienced the best Winter since his distress began. He still smokes but less than formerly. He continues on the same regimen very satisfactorily.

Case 10:—J. W., age 49, weight, 142½; blood pressure, 138/80. History of gastrointestinal disturbance since 1943, manifested as gas, sour taste in mouth and food regurgitation of sour-tasting liquid. He was very nervous and worried.

Physical examination:—Umbilical hernia; succussion in stomach; rectal, negative; urine, negative; stool, occult blood, positive; hemoglobin, 83 per cent.

Fasting gastric analysis:—Free HCl, 50; total acidity, 70; no food residue; no blood.

Fluoroscopy and x-ray:—Duodenal ulcer and gastritis. Modified ulcer diet, aluminum gel mixture and BepHan Spacetabs, one or two daily, according to degree of acid or heartburn. One month later, patient's gastric analysis showed free HCl, 20; total acidity, 32; no food residue; no occult blood. At his last visit in January 1957, he reported marked relief of his symptoms and continues to feel better.

Case 11:—A. S., 38 years of age. In 1949, while living in Austria, he contracted typhus fever and after recovery, complained of pain in the stomach which was relieved by food. X-ray examination showed a duodenal ulcer. Diet and medication relieved him of his symptoms at that time.

Symptoms recurred, especially after indiscretion in diet, emotional upset or excessive indulgence in liquor. For a while, he was taking anticholinergic medication with some relief, but recently even this does not help.

On examination, his blood pressure was 120/70; weight, 138 pounds; hemoglobin, 80 per cent; stool, foul, acid; occult blood, negative. After a Riegel test meal eaten 9 p.m. the evening before, the fasting stomach content the following morning indicated marked hypersecretion; mucus; free HCl, 42; total acidity, 60; occult blood, negative. Patient was given one BepHan Spacetab and asked to time the first appearance of dryness and inhibition of salivary secretion. This occurred within three-quarters of an hour, the patient noting less saliva, as well as dry mouth and pharynx. Through a duodenal tube a sufficient amount of gastric secretion was aspirated, and this showed less mucus, free HCl, 15; total acidity, 27.

The patient was instructed to swallow one BepHan Spacetab at eight-hour intervals until dryness of mouth and pharynx occurred, at which time he was to discontinue medication for 24 hours and report how he was progressing. He informed us that he had no pain, no sour eructations and that he felt comfortable. His diet was liberalized and at the same time placebo tablets were substituted. After three days, the patient returned, complaining again of pain, heartburn, and inability to sleep through the night without feedings. The BepHan Spacetabs were re-instituted, following which he went along nicely until 5 August 1957, when he sent for more tablets, saying that he was in need of them again after indulging in iced drinks, liquor and excessive smoking.

Case 12:—C. C., female, complained of heartburn and inability to sleep on account of regurgitation of "sour fluid". Flouroscope and x-ray examination revealed a fairly large hiatus hernia. She was advised to regulate her diet, to take BepHan Spacetabs, dissolved in the mouth, and to sleep on two pillows. This program alleviated the heartburn and permitted her to sleep. The patient now takes only one Spacetab after breakfast, and rarely before retiring and is quite comfortable.

Case 13:—L. S., male, had been told that he had a very high gastric acidity, hypersecretion, and duodenal ulcer. He had been taking aluminum gel, antispasmodics and alkalis with equivocal relief.

Fasting gastric content was aspirated through a duodenal tube and analyzed. Free HCl was 85; total acidity, 110; bile; mucus and some erosions. At this time, one tablet was placed between cheek and gums and allowed to disintegrate before swallowing. One hour later, free HCl was 56; total acidity, 78; bile; mucus and some erosions. Four hours later, aspiration of the gastric contents showed free HCl, 17; total acidity, 29; mucus; no bile; no erosions.

He was placed on a low residue diet, and told to reduce smoking to a minimum and to abstain from iced drinks and highly seasoned food. BepHan Spacetabs relieved the symptoms, except for acid eructations which occurred from time to time. Though dry mouth and throat usually followed ingestion of the tablet, he said that his "stomach felt better" on this regimen.

This patient was advised to continue on a dose of one Spacetab placed between cheek and gums at eight-hour intervals, to adhere to the bland diet and to report back in one week. Forty-eight hours later, the patient's wife telephoned to say that her hubsand's throat was very dry and sore and that he noted blurring of vision. She was told to have her husband discontinue the tablets, to continue his diet and to use an aluminum gel mixture as frequently as necessary for relief.

A short time later, a repeat aspiration revealed free HCl, 98; and total acidity, 127; some bile; no mucus; no erosions. Because of the dry throat and blurred vision noted previously, he refused to try the tablets again.

It is interesting to note the maximum reduction of gastric acidity that was obtained in this patient four hours after the control study.

Case 14:—J. K., male, 53 years of age. He was seen 8 March 1957, complaining of heartburn, which he had been experiencing, with remissions, since 1938. In addition he is frequently nauseous, and occasionally vomits, regardless of type of food, one hour after eating. Awakens between midnight and 2 A.M. Diagnosis of gastritis and duodenal ulcer was confirmed by x-ray.

The morning following a test supper at 9 P.M. the previous evening, fasting gastric content was aspirated through a duodenal tube and the free HCl was found to be 38; total acidity, 56; bile; mucus and erosions. Patient was placed on a smooth diet, an antispasmodic and an aluminum gel mixture combined with milk of magnesia.

A fractional gastric analysis was done on 29 March with Histalog. Final findings were, free HCl, 65; total acidity, 87; mucus and some erosions. Because of the pain which was sufficiently severe to awaken him between 12 and 2 a.m., patient was instructed to take a Seconesin tablet about 2 hours before midnight and to dissolve a BepHan Spacetab in his mouth at 10 to 12-

hour intervals. He was told to follow a modified Sippy diet and to abstain from cold, hot and spiced foods, alcohol and smoking.

On 26 April, a fasting gastric aspiration showed free HCl, 7; total acidity, 18; mucus; bile; no erosions. He reported that he had been able to sleep through the night, his heartburn had disappeared, and that he felt quite comfortable. He was advised to use the Spacetabs whenever he felt gastric distress or other untoward gastric symptoms. At last report, late in July, he continues to feel well.

Case 15:—E. K., female, age 54. Seen on 11 March 1957, she presented a history of having had an ulcer for 20 years. Had undergone a cholecystectomy 11 years ago. Present complaint, sour taste in mouth; burning in chest, getting worse as time goes on. Cheese and milk increase the symptoms. She is afraid that she has cancer.

Physical examination elicited a tenderness in the right upper quadrant and epigastrium. Weight, 175½ pounds; blood pressure, 132/84; urine, negative; stool, undigested food residue and vegetable fibers; mucus, ++; occult blood, negative. Fasting gastric examination shows free HCl, 60; total acidity, 82; bile, 3+; occult blood, negative.

Blood chemistry:—Sugar, 110 mg.; uric acid, 6.8 mg.; cholesterol, 220 mg.; Mazzini, negative; icterus index, 4-6 units.

Fluoroscopy and roentgenoscopy:—Heart, lungs, esophagus, negative; kidneys, bladder, uterus, negative; duodenal ulcer (old scar), arthritis of spine.

A selected diet free of dairy foods was outlined. In addition, the patient was instructed to take one BepHan Spacetab as required, to be chewed or dissolved in mouth. On 26 March, a fasting gastric analysis showed free HCl, 28; total acidity, 35; bile, +; mucus, +. She reported relief of the heartburn and pain. During the Easter holidays, she indulged freely in fried and other foods, drank some wine and did not take her medication. On 3 April, free HCl was 42; total acidity, 57; mucus, ++; bile, ++. She was admonished to restrict her diet and to use the BepHan Spacetab as required, but instead of allowing the tablet to dissolve in her mouth, she swallowed it soon after eating. She obtained very little relief this way and experienced blurred vision. On 9 April, fasting gastric content analyzed showed free HCl, 25; total acidity, 47; mucus, ++. Now she chews or allows the Spacetab to disintegrate in her mouth, and this controls her distress. Fear of cancer persists.

Case 16:—S. G., male, age 39, weight, 166¼; blood pressure, 122/78; seen 14 March 1956, complaining of heartburn and tiredness.

History:—Hernia operation 35 years ago; hemorrhoidectomy in 1945 and 1950. Now he believes that the blood he saw in 1945 was not from the hemorrhoids but from a bleeding ulcer, and he dates his heartburn back to 1946. A short time ago he had noticed dark stools, felt nauseous and faint, sweated

profusely and had gone into shock, vomiting several times. Was removed to a hospital where he was given 2 pints of blood by transfusion. His hemoglobin and red cells were said to be very low (he does not know the exact figures). After 2 weeks in the hospital, he went home, still feeling low in strength and more so in spirit.

Physical examination:—Pale looking individual in spite of his weight, very apprehensive and emotional, afraid of cancer and/or operation. Hemoglobin, 74 per cent; R.B.C., 3,740,000; W.B.C., 10,700; polys, 50; lymphocytes, 42; eosinophils, 2; monocytes, 6; coagulation and bleeding time prolonged. Abdominal palpation—no masses; spleen and liver not palpable; epigastric tenderness. Stool, 2 plus occult blood; urine, negative. No gastric analysis was attempted at this time. Patient was given an orange juice-milk-gelatine mixture and antacid in a little water or milk every 4 hours. He was advised to rest at least one hour three times daily and not to worry.

Prior to x-ray examination, a braid test (an improvement over the Einhorn string test) was conducted and positive blood spots were found after withdrawal of the braid.

On 29 March, x-ray examination revealed a congenitally small gallbladder and a duodenal ulcer. A low residue diet was begun, supplemented by injections of B_{12} with mixed vitamins and iron twice weekly, after which the hemoglobin rose to 79 per cent and R.B.C., 3,960,000. At this time, his diet was increased and he was more cheerful and less apprehensive. On 18 April, his hemoglobin was 82 per cent; R.B.C., 4,010,000; stool, occult blood, negative. On 2 May, the hemoglobin was 89 per cent; R.B.C., 4,480,000; has occasional heartburn. On 29 August, hemoglobin was 92 per cent; Meulengracht diet was given, and he was advised to continue on medication. Normal occupation resumed.

He was not seen again until 8 November. He claims that he is nervous, apprehensive and has heartburn, but does not feel tired or weak; hemoglobin, 92 per cent.

Fasting gastric analysis:—Free HCl, 99; total acidity, 118; mucus, ++; no occult blood.

He was told to chew or dissolve one BepHan Spacetab in his mouth once or twice daily. Used this way, he obtained more effective relief of his symptoms, but finding the taste and the dryness of the throat objectionable, he swallowed the tablets. This required a larger number of tablets and resulted in extreme dryness, flushing, and visual disturbances. He became alarmed and consulted an ophthalmologist who told him that the eye and other manifestations were due to ingestion of too many tablets.

We did not see the patient until 22 January 1957, when he again complained of recurrence of heartburn. A gastric analysis showed free HCl, 81; total

TABLE I

ACID SECRETION STUDIES

	First test –no medication				Prior to BepHan	Second test –after medication		
	9 P.M.	12 P.M.	3 A.M.	7 A.M.	9 P.M.	12 P.M.	3 A.M	7 A.M.
Case 1					↓ 9:10			
Volume–c.c.	90	64	40	38	80	65	70	58
Free HCl	52	45	28	20	48	32	46	20
Total HCl	70	60	40	28	62	44	66	28
pH	5.8	5.2	4.2	4.	5.2	4.8	5.	4.9
Case 2					9:10			
Volume–c.c.	90	80	76	50	58	42	50	38
Free HCl	15	35	30	17	32	28	40	20
Total HCl	20	50	48	24	48	40	52	32
pH	4.8	5.1	5.	4.9	5.2	5.	5.9	4.8
Case 3					↓ 9:30			
Volume–c.c.		52	46	32		34	18	15
Free HCl		28	14	4		16	4	0
Total HCl		36	20	6		20	6	4
Case 4					↓ 9:10			
Volume–c.c.	80	62	68	52	75	70	78	56
Free HCl	10	14	12	4	14	16	18	6
Total HCl	18	20	18	8	22	24	26	10
pH	4.5	4.8	4.6	3.8	4.5	4.6	4.6	4.
Case 5					↓ 8:45			
Volume–c.c.		48	26	28		50	28	36
Free HCl		32	24	10		30	18	12
Total HCl		46	36	14		42	24	16
Case 6					↓ 9:00			
Volume–c.c.		64	40	26		42	18	14
Free HCl		32	22	8		20	8	4
Total HCl		40	30	10		26	10	6

↓ Time when BepHan Spacetabs ingested

acidity, 93; mucus, +. He was given some of the placebo tablets and assured that he would not experience the dryness or visual disturbance. He reluctantly consented to try the tablets again and several days later his fasting gastric content showed free HCl, 63; total acidity, 76. At this time we substituted BepHan Spacetabs for the placebo, without his knowledge. On 29 January he again had a fasting gastric analysis and to our surprise, the free HCl was 7; total acidity, 12; mucus, +; hemoglobin, 96 per cent. This time the patient said that he liked the tablets thinking no doubt that he was still getting the placebo. We saw him again 11 April, 23 April and 24 July 1957, and he continues to be relatively symptom-free. He occasionally takes a half tablet, especially when he fears that he ate something which may give him heartburn or a sleepless night.

Night secretion studies were also performed in six hospitalized patients. In three cases, base-line acid analyses were made at 12 P.M., 3 A.M., and 7 A.M. Two nights later, these were repeated as follows: a Levin tube was inserted at 9 P.M. and clamped. One or two BepHan Spacetabs were then ingested. At 12 P.M., the first sample was aspirated, followed by repeat aspirations at 3 A.M. and 7 A.M.

In three other cases, base-line studies were made at 9 P.M., 12 P.M., 3 A.M. and 7 A.M. Two nights later, a control analysis was made at 9 P.M., at the conclusion of which one or two tablets were taken. Aspirations were then made at 12 P.M., 3 A.M., and 7 A.M.

The values obtained are shown in Table I and reveal a fairly consistent reduction in free and total acid in four of these tests.

Comment

The case reports reviewed here were selected at random and indicate the variety of gastrointestinal disorders which were treated with BepHan Spacetabs.

The favorable results obtained in these cases is typical of the response which we have observed in the majority of the patients receiving BepHan Spacetabs. Granted that this is a subjective estimate, it is obvious that sound objective evidence is provided by the decrease in free and total acidity obtained in the cases described here. Of special interest is the marked reduction in gastric acidity seen in Case 13, four hours after taking this medication.

Case 15 is also of interest in showing the reduction of gastric acidity following BepHan Spacetabs on two separate occasions. On 26 March, a gastric analysis revealed free HCl, 28 and total acidity, 35; as compared with the pretreatment figures of 60 and 82. Following an exacerbation due to dietary indiscretion, these figures were 42 and 57, whereas after treatment the free HCl was 25 and total acidity, 47. This case also serves to focus attention on another important factor, the method of administration. The posttreatment readings of the second gastric analysis were taken after the patient ingested a whole tablet,

and the resultant reduction was not as great as in the first analysis. when the medication had been chewed before swallowing. This appears to provide objective confirmation of the impression we have gained that a more favorable effect is obtained when the tablet is chewed before swallowing or allowed to disintegrate slowly in the mouth.

Further support for this method of administration is derived from Case 16. This patient found the taste and reduction of saliva objectionable and took to swallowing the tablets in an effort to obviate these effects. He did not, however, obtain the same degree of symptomatic relief this way and took a larger number of tablets, resulting in extreme dryness, flushing and visual blurring.

Thus, proper administration of the tablets seemingly enhances the clinical activity of this preparation, manifested in an optimal therapeutic effect and greater tolerability, prime requisites for successful treatment.

This case is also of interest because of the gastric analyses which were performed before treatment, after antacid* alone and after BepHan Spacetabs. The first reading was free HCl, 81 and total acidity, 93; after antacid, the free HCl was 63 and total acidity, 76; while after BepHan, free HCl was 7 and total acidity, 12. This experiment confirms our observations that the BepHan Spacetabs were much more effective than the tablets containing antacid alone and supports the value of adding the anticholinergic for optimum therapeutic effect.

Since most of the patients in this series obtained favorable results with only two tablets per day, it would appear that BepHan does indeed reduce hypermotility sufficiently to effect a greater control of gastric acidity. This mechanism is obviously a combination of a delayed gastric emptying time due to the Bellafoline and a more effective reaction between the antacids and the stomach acid.

It is interesting to note that the tablets first supplied to us contained only Bellafoline and aluminum hydroxide glycine. Soon after, these were altered through the addition of sustained-action magnesium oxide, providing a combination which quickly demonstrated greater therapeutic activity. Contributing to a more efficient neutralization of acid, the magnesium ion no doubt was also responsible for the relative absence of constipation in this series of cases.

Dryness of the throat and blurring of vision were the only side actions to limit therapy. These are actually extensions of anticholinergic activity and occurred mainly when the dosage exceeded two BepHan Spacetabs daily, or in patients unduly sensitive to it. These effects were obviated in a number of cases by using half of the scored tablet as required. Care should be taken to deter-

*This tablet was identical in appearance to the BepHan and was supplied as a control. It contains aluminum hydroxide glycine and magnesium oxide, the latter in sustained-action form. We found it useful also as a supplement to BepHan in a few cases where larger quantities of antacid were required during periods of exacerbation.

mine the presence of glaucoma since these tablets are contraindicated in the presence of increased intraocular tension.

Summary and Conclusion

This study has demonstrated the value of a new long-acting antacid-anticholinergic combination, BepHan Spacetabs, in the treatment of a wide variety of gastrointestinal disorders. This is apparently related to two important actions: 1. prolonged inhibition of gastric motility which delays gastric emptying and increases the period of reaction between the antacids and stomach acid, and 2. greater retention of the antacids in the stomach, reflected in a more sustained and efficient neutralization of stomach acidity.

The extended therapeutic effect obtained with two tablets daily indicates that this is a practical and economical method of treatment. We also observed that the onset of action was short, and that rapid relief of gastric distress had a favorable influence on the patient as a whole.

This preparation represents a significant advance in the medical management of gastrointestinal disorders associated with hyperacidity and hypermotility. A program utilizing this preparation, diet and sound counsel, can be extremely beneficial to patients with stomach or allied gastrointestinal complaints.

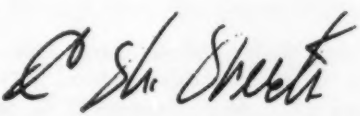
President's Message

The Fall Season

The working year for the physician might be said to begin in September. The heat of summer is waning, vacations are over, children are returning to school and families once more are resuming a more regular pattern of activities. The physician too returns to established schedules of work which have been interrupted for several months.

Vacations are often considered more trouble than they are worth because of the necessary preliminary planning and the inevitable backlog of work that accumulates when one is relaxing. For the most part, however, the change, of whatever variety, that results from a holiday permits one to take up old problems with renewed vigor. Frequently the previously insoluble matter becomes only a minor issue when one can lay it aside for a while and then re-attack it with freshened energy and a somewhat different viewpoint.

We should have these two attributes in abundance when we meet in New Orleans in October and therefore can enjoy with full appreciation the excellent scientific program, postgraduate course and entertainment that has been so well planned by the local members. New Orleans is recognized widely both medically and socially as an ideal city in which to hold these general sessions; for those who have committee duties in addition, such as the Board of Governors, Board of Trustees and officers, an hospitable atmosphere conducive to progressive action should prevail.



NEWS NOTES

Twenty-Third Annual Convention

For our Twenty-third Annual Convention, the American College of Gastroenterology returns to New Orleans and the Jung Hotel, the site of a previous successful regional meeting. The business sessions will commence with committee meetings on Saturday, 18 October 1958. These will be followed on Sunday, 19 October 1958 with the Annual Meeting of the Board of Trustees, a luncheon for the Board of Trustees and the Board of Governors and the Annual Meetings of the Fellowship of the College and the Woman's Auxiliary.

At the Annual Meeting of the College, election of Officers, Trustees and Governors will take place and amendments to the Constitution and By-laws will be voted upon.

The Woman's Auxiliary will, in addition to their business meeting, hold a welcome tea honoring the officers and new members of the Auxiliary.

At 6:30 P.M., on Sunday, the Annual Convocation Ceremony will take place in the Tulane Room and certificates will be presented to Honorary Fellows, newly elected and advanced Fellows and Associate Fellows. At this colorful ceremony, Major-General James P. Cooney, M.C., Deputy Surgeon General, Department of the Army, will be the principal speaker. General Cooney will also be the recipient of an Honorary Fellowship.

Once again, William H. Rorer, Inc., of Philadelphia, Pa., will be our host at the buffet supper and tickets of admission may be obtained by those attending the convocation ceremony. This will be followed by a movie on New Orleans.

Again this year, the scientific sessions which will be held in the Tulane Room on Monday, Tuesday and Wednesday, 20, 21, 22 October will feature panel discussions on topics of vital and current interest. There will also be several individual papers.

Because of a smaller amount of space available, there will be fewer technical and scientific exhibits and these have been carefully chosen to present the best that is available. They will be located on the Mezzanine Floor between the registration desk and the entrance to the meeting room.

Following a custom inaugurated several years ago, coffee and sweet rolls will be served each morning at 8:30 in the exhibit area and *coffee only* will continue to be served until 11:30. For this, our thanks go to The House of Seagram.

Mr. Charles Dufour, noted columnist, will speak on "New Orleans—A la Mode" at the Monday luncheon, which is given to us annually by Burton, Parsons & Co., of Washington, D. C. Tickets will be available at the registration desk.

For our Annual Dinner-Dance to be held Tuesday evening, 22 October in the Tulane Room, we will sell tickets in a different way. Past experience has shown that many of those attending would like to sit together but are unable to find seats at the same table. This year tickets will be sold by table numbers and those desiring to sit at the same table are urged to purchase their tickets at the same time or have one of their number purchase tickets for the entire group.

We will again present silver certificates signifying twenty-five years of affiliation to four members of the College.

Dr. Frank J. Borrelli of New York will assume the Presidency at this time, receiving the insignia of office from Dr. C. Wilmer Wirts of Philadelphia, the outgoing President.

Under the chairmanship of Dr. Louis Ochs, Jr., the Program Committee has prepared an excellent scientific program and Postgraduate Course. A copy of the program will be found elsewhere in this issue and members of the College will receive theirs additionally in the mail. Copies are also available from the headquarters office, 33 West 60th Street, New York 23, N. Y.

Woman's Auxiliary Program

The women of the local New Orleans program and entertainment committee, consisting of Mesdames Louis Ochs, Jr., chairman, Benjamin O. Morrison, Murrel H. Kaplan, Jules Myron Davidson, Irving A. Levin and James T. Nix, have arranged an excellent program of social activities for the wives and families of those doctors attending the Convention. A full copy of the program and other details will be sent by mail.

The committee has submitted the following:

Sunday, 19 October 1958

Registration opens on the mezzanine floor of the Jung Hotel at 12:00 Noon. A badge will be necessary to visit the exhibits.

The business meeting of the Auxiliary and election of officers will take place at 2:00 P.M. A membership tea honoring the Officers and new members is scheduled for 3:30 P.M.

The ladies are invited to the convocation ceremony at 6:30 P.M. and the buffet supper following, at which a feature movie of New Orleans will be shown.

Monday, 20 October 1958

A tour on the yacht "Good Neighbor" around the entire New Orleans waterfront will leave at 10:00 A.M.

At 3:00 P.M., there will be a demonstration of French cuisine Creole cooking at the New Orleans Public Service Building. Creole cook books and refreshments will be dispensed.

The evening will be open for individual activities.

Tuesday, 21 October 1958

A tour of the famous New Orleans Garden district including a visit inside the homes of the area, the University section, famous parks and the lakeside residential district will be made by bus, leaving the hotel at 9:45 A.M.

The afternoon will be open for individual activities.

The Annual Dinner-Dance of the College, preceded by cocktails, will take place at 7:00 P.M. This will be informal and there will be dancing and music.

Wednesday, 22 October 1958

Brunch at 10:00 A.M., at the famous Brennan's Restaurant in the Vieux Carré followed by a conducted walking tour through the French Quarter, has been arranged.

Reservations for all activities are required and should be made in advance.

Registration

The registration desks for the Convention will be on the Mezzanine Floor of the Jung Hotel and will be open at 1:00 P.M., on Sunday, 19 October 1958. An identification badge will be issued to those who register and no one will be admitted to the exhibits or the sessions without it.

Annual Meeting Board of Trustees

The Annual Meeting of the Board of Trustees will be held at the Jung Hotel in New Orleans, La., at 9:00 A.M., on Sunday, 19 October 1958. Following the meeting at 1:00 P.M., a joint luncheon with the Board of Governors will take place.

Annual Meeting American College of Gastroenterology

The Fellows and Life Fellows of the American College of Gastroenterology will hold their Annual Meeting at the Jung Hotel in New Orleans, La., on Sunday afternoon, 19 October 1958 at 3:00 P.M. Election of Officers, Trustees and Governors will be held at that time.

Convocation Ceremony

The Annual Convocation Ceremony of the College will be held at 6:30 P.M., on Sunday evening, 19 October 1958 at the Jung Hotel in New Orleans, La. Major-General James P. Cooney, M.C., will speak.

William H. Rorer, Inc. Buffet Supper

The buffet supper sponsored by William H. Rorer, Inc., will take place in the Tulane Room at 8:30 P.M.

Tickets will be distributed only to those attending the convocation ceremony.

Scientific Exhibits

A committee under the chairmanship of Dr. Murrel H. Kaplan, has selected outstanding scientific exhibits which will be on display in the exhibit area on the Mezzanine Floor from Monday morning, 20 October 1958 through noon on Thursday, 23 October 1958.

Awards of certificates and ribbons will be made for the best exhibits.

Burton, Parsons & Co. Luncheon

Charles Dufour, noted New Orleans columnist, will be the speaker at the Annual Burton, Parsons & Co. luncheon at 12:30 P.M., on Monday, 20 October 1958.

Cards of admission may be obtained at the registration desk on the Mezzanine Floor.

Credentials Committee

The Credentials Committee will meet at 5:00 P.M., on Monday, 20 October 1958 at the Jung Hotel in New Orleans, La. Only those applications received by 6 October 1958 will be considered.

Annual Meeting Board of Governors

The Annual Meeting of the Board of Governors will be held on Tuesday, 21 October 1958 at 4:00 P.M., at the Jung Hotel in New Orleans, La.

Included in the business will be an election of a chairman and the appointment of committees.

Annual Dinner-Dance

The Annual Dinner-Dance of the College will be held in the Tulane Room of the Jung Hotel in New Orleans, La., at 7:00 P.M., on Tuesday evening, 21 October 1958.

Cocktails will precede the dinner and there will be dancing throughout the evening.

The affair will again be *informal* and tickets at $10.00 per person will be available in advance. All reservations for the dinner must be made by 10:00 A.M., Tuesday, 21 October 1958.

Those wishing to sit together are requested to purchase their tickets at the same time to assure being seated at the same table.

Course in Postgraduate Gastroenterology

The Annual Course in Postgraduate Gastroenterology of the American College of Gastroenterology will be held at the Jung Hotel in New Orleans, La., on 23, 24, 25 October 1958, with an afternoon session to be held in the auditorium of the Louisiana State University School of Medicine.

The moderators of the Course, Dr. Owen H. Wangensteen of Minneapolis, Minn. and Dr. I. Snapper of Brooklyn, N. Y., will be assisted by a faculty selected from the medical schools in New Orleans.

Only those presenting matriculation cards indicating that they have registered and paid the fee will be admitted to the Course sessions.

Nominating Committee Report

The Nominating Committee of the American College of Gastroenterology, consisting of Dr. Arthur A. Kirchner, Los Angeles, Calif., Chairman; Dr. Frank J. Borrelli, New York, N. Y.; Dr. Paul L. Shallenberger, Waverly, N. Y.; Dr. Stanley S. Sidenberg, Cleveland, Ohio and Dr. Joseph E. Walther, Indianapolis, Ind., has submitted the following slate of candidates to be voted upon at the Annual Meeting of the Fellowship of the College in October.

Officers

President-Elect	Joseph Shaiken, M.D., Milwaukee, Wisc.
1st Vice-President	Henry Baker, M.D., Boston, Mass.
2nd Vice-President	Louis Ochs, Jr., M.D., New Orleans, La.
3rd Vice-President	Edward J. Krol, M.D., Chicago, Ill.
4th Vice-President	Theodore S. Heineken, M.D., Glen Ridge, N. J.
Secretary	Joseph R. Van Dyne, M.D., Forest Hills, N. Y.

Board of Trustees

For 3 years:	Harry Barowsky, M.D., New York, N. Y.
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	Donald C. Collins, M.D., Hollywood, Calif.
	Harry A. Oberhelman, M.D., Oak Park, Ill.
	Henry G. Rudner, Sr., M.D., Memphis, Tenn.

Board of Governors

Florida	Frederick E. Manulis, M.D., Palm Beach
Georgia	Maxwell R. Berry, M.D., Atlanta
Illinois	John P. Waitkus, M.D., Chicago
Indiana	Joseph E. Walther, M.D., Indianapolis
Iowa	Elwood Buchman, M.D., Iowa City
Kentucky	Samuel A. Overstreet, M.D., Louisville
Louisiana	William Fisher, M.D., New Orleans
Lower New York	Edward J. Nightingale, M.D., New York City
North Carolina	A. Jack Tannenbaum, M.D., Greensboro
Ohio	Stanley S. Sidenberg, M.D., Cleveland
Rhode Island	William L. Leet, M.D., Providence
Tennessee	Ralph R. Braund, M.D., Memphis
Texas	H. B. Eisenstadt, M.D., Port Arthur
Quebec	Paul Letendre, M.D., Montreal

New York Chapter Elects

At the Annual Meeting of the New York Chapter of the American College of Gastroenterology held on 19 May 1958, the following officers were elected for 1958-59: President, Dr. Milton J. Matzner; President-elect, Dr. Michael Weingarten; First Vice-President, Dr. Joseph R. Van Dyne; Second Vice-President, Dr. Hyman M. Robinson; Secretary, Dr. Alexander Slanger; Recording Secretary, Dr. Jerome Weiss; Treasurer, Dr. William C. Jacobson; Chairman, Board of Trustees, Dr. Harry Barowsky.

American Board of Internal Medicine

The American Board of Internal Medicine announces the following dates for examinations in 1959.

Written Examination	*Closing date for acceptance of applications*
19 October 1959	1 May 1959

Oral Examinations

New Orleans, La.
3-6 February 1959
For candidates in the South and South West — 1 January 1959

Chicago, Ill.
15-18 April 1959
For candidates in Mid-west — 1 January 1959

Portland, Ore.
9-12 September 1959
For candidates on West Coast — 1 March 1959

Boston, Mass.
6-7, 9-10 November 1959
For candidates on East Coast — 1 March 1959

Gastroenterology

Philadelphia, Pa.
17-18 April 1959 — 1 February 1959

Further information may be obtained from Dr. William A. Werrell, Executive Secretary-Treasurer, American Board of Internal Medicine, 1 West Main Street, Madison 3, Wisconsin.

American Psychosomatic Society

The American Psychosomatic Society will hold its Sixteenth Annual Meeting at Chalfonte-Haddon Hall in Atlantic City on Saturday and Sunday 2 and 3 May 1959.

The Program Committee would like to receive titles and abstracts of papers for consideration for the program no later than 1 December 1958. The time allotted for presentation of each paper will be twenty minutes.

Abstracts, in octuplicate, should be submitted for the Program Committee's consideration, to the Chairman, at 265 Nassau Road, Roosevelt, New York.

Errata

In the article "Clinical Evaluation of Paper Electrophoresis. IV. The Finding of Abnormal Protein Components in a Case of Virus Hepatitis and Laennec's Cirrhosis (Report of Two Cases)" by Drs. Wolff, Goldbloom and Brittis which appeared on pages 179-191 in the August 1958 issue, Figures 2 and 3 were inadvertently reversed. Also, Figure 3 should read "Case 1" and not "Case 2".

We apologize for these errors which have been corrected in the reprint.

Program

AMERICAN COLLEGE OF GASTROENTEROLOGY

TWENTY-THIRD ANNUAL CONVENTION
20, 21, 22 OCTOBER 1958
and
COURSE IN POSTGRADUATE GASTROENTEROLOGY
23, 24, 25 OCTOBER 1958

JUNG HOTEL
1500 Canal Street
New Orleans, La.

MEXICO REGIONAL MEETING
27 OCTOBER 1958
Auditorium of the Hospital Central, S.C.O.P.
Mexico, D. F.

Members of the medical profession are cordially invited to attend the convention and regional meeting sessions

Attendance at the Postgraduate Course is limited to those who have paid the matriculation fee

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Grand Rapids, Mich.
WALTER L. MERSHEIMER, M.D.
New York, N. Y.
GEORGE K. WHARTON, M.D.
Los Angeles, Calif.

REGISTRATION—All members and guests should register. Identification badges for admittance to meetings will be given to those who register. These should be worn at all times during the session. Registration will take place at the registration desk on the convention floor. Registration facilities will open at 1:00 P.M. on Sunday and at 8:30 each morning.

LADIES REGISTRATION—At the registration desk on the Convention Floor. Registration facilities will open at 1:00 P.M. on Sunday and at 8:30 each morning. Information concerning the various activities and events will be available there.

DINNER-DANCE—Tickets will be sold by tables and will be available at the registration desk. Those desiring to be seated together must purchase tickets at the same time.

MEETINGS are held on local time and will begin promptly at the time specified.

COURSE IN POSTGRADUATE GASTROENTEROLOGY—Admittance only upon presentation of official matriculation card.

SCIENTIFIC EXHIBITS—Will be in the Exhibit Hall and will be open Monday, Tuesday, and Wednesday 8:30 a.m. to 5 p.m., Thursday from 8:30 a.m. to 1:00 p.m.

TECHNICAL EXHIBITS under the direction of Mr. Steven K. Herlitz, Exhibit Manager, will be open Monday, Tuesday, and Wednesday from 8:30 a.m. to 5:00 p.m., Thursday from 8:30 a.m. to 1:00 p.m.

MEXICO REGIONAL MEETING—Travel arrangements can be made through World-Wide Travel Service Corp., 1800 H St. N. W., Washington 6, D. C. or with their representative at the convention. There will be a $10.00 U. S. currency registration fee.

Those attending the Convention are urged to take advantage of the time in between the presentation of papers and sessions, to visit the technical exhibits and become acquainted with the many new products and new equipment on display.

VISIT THE EXHIBITS

PROGRAM

TWENTY-THIRD ANNUAL CONVENTION
AMERICAN COLLEGE OF GASTROENTEROLOGY

SCIENTIFIC SESSIONS
20, 21, 22 October 1958

and

COURSE IN POSTGRADUATE GASTROENTEROLOGY
23, 24, 25 October 1958

JUNG HOTEL
1500 Canal Street
New Orleans, La.

MEXICO REGIONAL MEETING
27 October 1958

AUDITORIUM OF THE HOSPITAL CENTRAL, S.C.O.P.
Mexico, D. F.

SPEAKERS

AKENHEAD, WALTON R., M. D., New Orleans, La. Professor of Medicine and Head of the Department of Medicine, Louisiana State University School of Medicine, Senior Visiting Physician and Chief of Medicine, Louisiana State University Unit, Charity Hospital of Louisiana at New Orleans. *(p. 22).*

ARMSTRONG, RAUL, M.D., B.A., New Orleans, La. Fellow in Surgery, Ochsner Clinic. *(p. 21).*

BARGEN, J. A., M.S., M.D., Rochester, Minn. Professor of Medicine, Mayo Foundation, University of Minnesota; Chairman of the Department of Gastroenterology, Mayo Clinic. *(p. 17).*

BLITZ, OSCAR, B.S., M.D., New Orleans, La. Clinical Associate Professor of Medicine, Louisiana State University, School of Medicine; Senior Visiting Physician, Charity Hospital; Visiting Physician, Touro Infirmary; Consultant in Chest Diseases, Veterans Hospital, New Orleans. *(p. 22).*

BOYCE, FREDERICK FITZHERBERT, B.S., M.D., New Orleans, La. Professor of Clinical Surgery, Tulane University School of Medicine; Senior Visiting Surgeon, Charity Hospital of Louisiana at New Orleans; Visiting Surgeon, Hotel Dieu and Mercy Hospital. *(p. 14).*

BROWNE, DONOVAN C., M.D., F.A.C.G. (Hon.), New Orleans, La. Associate Professor of Medicine, Tulane University School of Medicine; Senior Gastroenterologist, Touro Infirmary; Visiting Physician, Division of Medicine, Charity Hospital of Louisiana at New Orleans. *(p. 17).*

VISIT THE EXHIBITS

BURKE, E. L., M.D., New Orleans, La. Assistant Chief of Surgery, Veterans Hospital, New Orleans, La. *(p. 14).*

CARLO, JOSE PAGAN, M.D., New Orleans, La. Senior Resident, Department of Radiology, Touro Infirmary. *(p. 15.)*

COHN, ISIDORE, Jr., B.S., M.D., D.Sc. (Med.), F.A.C.G., New Orleans, La. Associate Professor of Surgery, Louisiana State University School of Medicine; Visiting Surgeon, Charity Hospital of Louisiana at New Orleans. *(p. 21).*

COLCHER, HENRY, M.D., New York, N. Y. Associate in Medicine, Department of Medicine, Columbia University College of Physicians and Surgeons; Assistant Physician, Gastroenterology Clinic, Presbyterian Hospital. *(p. 14).*

COLLINS, DONALD C., B.A., M.D., M.S., Sc.D., F.A.C.S., F.I.C.S., F.A.C.G., Hollywood Calif. Assistant Professor of Surgery, College of Medical Evangelists; Attending Physician, General Surgery, Los Angeles County General Hospital; Senior Attending Surgeon, Surgical Staff, Hollywood-Presbyterian Hospital, Los Angeles; Consulting Surgeon, St. Joseph's Hospital, Burbank. *(p. 13).*

CONKLIN, WILLIAM, New Orleans, La. *(p. 13).*

CRAIGHEAD, CLAUDE C., B.A., M.D., New Orleans, La. Clinical Associate Professor, Louisiana State University School of Medicine; Senior Associate Surgeon, Touro Infirmary; Senior Visiting Surgeon, Charity Hospital of Louisiana at New Orleans. *(p. 20).*

CREECH, OSCAR, Jr., M.D., F.A.C.S., New Orleans, La. Chairman and Professor, Department of Surgery, Tulane University School of Medicine. *(p. 22).*

CREEK, DALE W., A.B., M.D., F.A.C.G., Santa Barbara, Calif. Medical Staff, The Sansum Medical Clinic, Santa Barbara College, Santa Barbara General and St. Francis Hospitals. *(p. 31).*

CROHN, BURRILL, B., M.D., New York, N. Y. Consultant in Gastroenterology, Columbia University School of Graduate Medicine; Consultant in Gastroenterology, The Mt. Sinai Hospital. *(p. 15).*

DASCOMB, HARRY E., A.B., M.D., New Orleans, La. Associate Professor of Medicine, Louisiana State University School of Medicine. *(p. 23).*

DAVIS, WILLIAM D., Jr., B.S., M.D., New Orleans, La. Assistant Professor of Clinical Medicine, Tulane University School of Medicine; Chief of Gastroenterology, Ochsner Foundation Hospital and Clinic; Consultant in Gastroenterology, Veterans Hospital, New Orleans. *(pp. 12, 23).*

DUGAS, J. E., Jr., M.D., Chalmette, La. Resident in Surgery, Veterans Hospital, New Orleans. *(p. 14).*

ECKER, JEROME A., M.D., F.A.C.P., F.A.C.G., Santa Barbara Calif. Chief of Section of Internal Medicine, Santa Barbara Medical Clinic; Attending Physician, Santa Barbara Cottage Hospital, Section of Internal Medicine; Santa Barbara St. Francis Hospital, Section of Internal Medicine; Former Chief of Section of Internal Medicine, Santa Barbara General Hospital. *(p. 16).*

FARFEL, BERNARD, B. S., M.D., F.A.C.G., Houston, Texas. Assistant Professor of Clinical Medicine, Baylor University College of Medicine; Lecturer, University of Texas Postgraduate School; Volunteer Internist, M.D. Anderson Hospital and Tumor Institute; Visiting Staff, St. Joseph's, St. Luke's and Jefferson Davis Hospitals. *(p. 32).*

FARRAR, TURLEY, M.D., M.S., Memphis, Tenn. Instructor of Clinical Surgery, University of Tennessee College of Medicine, Active Staff, Baptist Memorial Hospital. *(p. 17).*

FRYE, WILLIAM W., B.S., M.S., Ph.D., M.D., F.A.C.G. (Hon.), New Orleans, La. Dean and Professor of Tropical Medicine, Louisiana State University School of Medicine; Chief, Louisiana State University Service, Charity Hospital of Louisiana at New Orleans. *(p. 24).*

GENTNER, GEORGE, M.D., New Orleans, La. Radiologist, Department of Radiology, Touro Infirmary. *(p. 15).*

GOLDSMITH, GRACE A., B.S., M.D., M.S. (Med.), New Orleans, La. Professor of Medicine, Tulane University School of Medicine; Consultant Physician, Charity Hospital of Louisiana at New Orleans. *(p. 25).*

GOLDSTEIN, FRANZ, M.D., Philadelphia, Pa. Instructor in Medicine, The Jefferson Medical College and Hospital. *(p. 12).*

GOODMAN, EDMUND N., M.D., New York, N. Y. Assistant Professor of Clinical Surgery, Columbia University College of Physicians and Surgeons; Assistant Attending Surgeon, Presbyterian Hospital. *(p. 14).*

GOURLEY, ROBERT, M.D. Memphis, Tenn. Pathologist, Veterans Administration Medical Teaching Group Hospital. *(p. 32).*

GUTIERREZ VASQUEZ, SAMUEL, B.S., M.D., F.A.C.G., Mexico, D.F. Professor, Third Course in Surgical Pathology, University of Mexico; Assistant Director and Surgeon, Hospital de la Raza. *(p. 32).*

HALEY, TIMOTHY, M.D., New Orleans, La. Radiologist, Department of Radiology, Touro Infirmary. *(p. 15).*

HALLE, SHEA, B.A., M.D., New Orleans, La. Instructor in Medicine, Louisiana State University School of Medicine; Visiting Physician, Charity Hospital of Louisiana at New Orleans, Touro Infirmary. *(p. 24).*

HANLEY, PATRICK H., M.D., New Orleans, La. Assistant Professor of Surgery, Tulane University School of Medicine; Ochsner Foundation Hospital; Touro Infirmary; Charity Hospital of Louisiana at New Orleans. *(p. 26).*

HARDY, JAMES D., B.S., M.S., M.D., Jackson, Miss. Professor and Chairman, Department of Surgery, Director of Surgical Research, University of Mississippi Medical Center; Surgeon-in-Chief to the Hospital of the University of Mississippi; Chief Surgical Consultant, Jackson Veterans Hospital and Mississippi State Sanatorium. *(p. 21).*

HARO y PAZ, GUILLERMO, B.S., M.D., F.A.C.G., Mexico, D.F. Professor, First Course, Clinic of Gastroenterology, University of Mexico; Director, Hospital Central S.C.O.P. *(p. 31).*

HERTZOG, AMBROSE, J., M.D., Ph.D., New Orleans, La. Lecturer in Pathology, Tulane University; Pathologist and Director of Laboratories, Touro Infirmary. *(p. 21).*

HINES, MERRILL O., M.D., New Orleans, La. Assistant Professor of Surgery, Tulane University School of Medicine; Ochnser Foundation; Touro Infirmary; Charity Hospital of Louisiana at New Orleans. *(p. 26).*

HOYT, ROBERT E., Ph.D., Los Angeles, Calif. Department of Bacteriology, Cedars of Lebanon Hospital. *(p. 25).*

HUNTER, FRED M., B.S., M.D., New Orleans, La. Instructor in Medicine, Tulane University School of Medicine. *(p. 25).*

HYDE, PAUL M., B.S., M.S., Ph.D., New Orleans, La. Assistant Professor of Biochemistry, Louisiana State University School of Medicine; Urban Maes Research Laboratory. *(p. 14).*

INOUYE, MITSUO, M.D., Los Angeles, Calif. Attending Physician, Culver City Hospital. *(p. 25).*

VISIT THE EXHIBITS

JOHNSTON, C. G., B.S., M.D., Detroit, Mich. Professor of Surgery, Wayne State University College of Medicine. *(p. 23).*

JORDAN, PRESCOTT, Jr., M.D., Detroit, Mich. Associate Professor of Surgery, Wayne State University College of Medicine. *(p. 23).*

JUNG, RODNEY C., B.S., M.D., M.S., Ph.D., New Orleans, La. Associate Professor of Tropical Medicine, Tulane University School of Medicine; Visiting Physician, Charity Hospital of Louisiana at New Orleans. *(p. 24).*

KAPLAN, I. W., M.D., New Orleans, La. Clinical Professor of Surgery, Louisiana State University School of Medicine; Senior Associate in Surgery, Touro Infirmary; Visiting Surgeon, Flint-Goodridge Hospital; Consultant Surgeon, Sara Mayo Hospital; Visiting Senior Surgeon, Charity Hospital of Louisiana at New Orleans. *(p. 18).*

KAPLAN, MURREL H., A.B., M.D., F.A.C.G., New Orleans, La. Chief, Department of Gastroenterology, Touro Infirmary. *(p. 14).*

KATZ, GEORGE M., M.E.E., New York, N. Y. Research Associate, Department of Surgery, Columbia University College of Physicians and Surgeons. *(p. 14).*

KITTINGER, ALICE, LaJolla, Calif. *(p. 16).*

KOLODNY, GEORGE, B.S., M.D., F.A.C.S., Houston, Texas. Associate Professor of Clinical Ophthalmology, and Ophthalmic Pathologist, Baylor University College of Medicine; Attending Ophthalmologist, Hermann; St. Luke's, Jefferson Davis and Veterans Hospitals. *(p. 32).*

KREMENTZ, EDWARD T., M.D., F.A.C.S., New Orleans, La. Associate Professor, Department of Surgery, Tulane University School of Medicine. *(p. 22).*

LEON, WILLIAM, M.D., B.S., New Orleans, La. Clinical Assistant Professor of Surgery, Louisiana State University School of Medicine; Senior Associate, Touro Infirmary. *(p. 20).*

LEVY, MORRIS, M.D., New Orleans, La. Resident in General Surgery, Touro Infirmary. *(p. 20).*

LICHTSTEIN, JACOB, M.D., F.A.C.P., F.A.C.G., Los Angeles, Calif. Assistant Professor of Clinical Medicine, University of Southern California School of Medicine; Attending Staff, Los Angeles County Hospital, Cedars of Lebanon Hospital. *(p. 18).*

LIEBERMAN, AARON, B.S., M.D., F.A.C.G., Mexico, D.F. Assistant Professor, Third Course Surgical Clinic, University of Mexico; Surgeon and Chief of Bed Section, Hospital Central S.C.O.P. *(p. 31).*

LIEF, HAROLD I., A.B., M.D., New Orleans, La. Associate Professor, Tulane University School of Medicine; Visiting Physician, Charity Hospital of Louisiana at New Orleans. *(p. 17).*

LYONS, CHAMP, B.A., M.D., Birmingham, Ala. Professor and Chairman, Department of Surgery, Medical College of Alabama. *(pp. 23, 26).*

MAHORNER, HOWARD, M.D., A.B., New Orleans, La. Clinical Professor of Surgery, Louisiana State University School of Medicine. *(p. 22).*

MARSHALL, EDWARD A., M.D., F.A.C.G., Cleveland, Ohio. Director, Division of Medicine, Huron Road Hospital. *(p. 15).*

McBURNEY, ROBERT P., M.D., M.S., Memphis, Tenn. Instructor in Surgery, University of Tennessee College of Medicine; Associate Staff, Baptist Memorial Hospital. *(p. 17).*

McGLONE, FRANK B., B.A., M.D., Denver, Colo. Associate Professor of Medicine, University of colorado; Director of Medical Education, St. Joseph's Hospital. *(p. 17).*

McHARDY, GORDON, M.D., New Orleans, La. Associate Professor of Medicine, Louisiana State University School of Medicine; Senior in Gastroenterology, Touro Infirmary; Senior Visiting Physician, Charity Hospital of Louisiana at New Orleans. *(p. 12).*

McMAHON, JOHN M., M.D., M.S., F.A.C.P., F.A.C.G., Bessemer, Ala. Assistant Professor of Clinical Medicine, Medical College of Alabama; Formerly Chief of Medicine, Birmingham Baptist Hospital. *(p. 11).*

McQUITTY, JAMES T., B.S., M.D., New Orleans, La. Assistant Professor of Surgery, Tulane University School of Medicine; Senior Associate, Surgical Staff, Touro Infirmary; Visiting Staff, Charity Hospital of Louisiana at New Orleans; Southern Baptist and Mercy Hospitals. *(p. 20).*

MEIER, RALPH J., M.D., New Orleans, La. Resident Staff, Touro Infirmary. *(p. 18).*

MIANGOLARRA, C. J., B.Sc., M.D., F.A.C.G., F.A.C.S., New Orleans, La. Professor of Clinical Surgery, Louisiana State University School of Medicine; Senior Surgeon, Active Staff, Touro Infirmary; Attending Surgeon, Veterans Hospital, New Orleans. *(p. 25).*

MICHEL, M. L., M.D., New Orleans, La. Associate Professor of Surgery, Tulane University School of Medicine. *(p. 26).*

MONAT, HENRY A., A.B., M.D., F.A.C.P., F.A.C.G., Washington, D.C. Formerly Associate Clinical Professor of Medicine, Georgetown University. *(p. 16).*

MONROE, LEE S., M.D., F.A.C.P., La Jolla, Calif. *(p. 16).*

MOORE, ROBERT H., M.D., Galveston, Texas. Professor and Chairman, Department of Surgery, Director of Surgical Services, University Hospitals. *(p. 26).*

MORRISON, BENJAMIN O., M.D., M.P.H., New Orleans, La. Instructor, Louisiana State University School of Medicine; Junior, Department of Gastroenterology, Touro Infirmary. *(p. 15).*

MORRISON, LESTER M., M.D., F.A.C.P., F.A.C.G., Los Angeles, Calif. Lecturer in Medicine, College of Medical Evangelists; Senior Attending Physician, Los Angeles County General Hospital; Medical Director, Crenshaw, Doctor's and Whittier Hospitals. *(p. 25).*

MORTON, BENJAMIN F., A.B., M.D., Birmingham, Ala. Associate Professor of Clinical Psychiatry, Medical College of Alabama, Psychiatric Staff, University and Birmingham Baptist Hospitals. *(p. 11).*

MUHLEISEN, JOHN P., B.S., M.D., New Orleans, La. Instructor in Medicine, Tulane University School of Medicine; Chief of Gastroenterology, Veterans Hospital, New Orleans. *(p. 24).*

NIX, J. T., M.D., Ph.D. (Surg.), F.A.C.G., New Orleans, La. Assistant Clinical Professor of Surgery, Louisiana State University School of Medicine; Active Member, Hotel Dieu and Mercy Hospital Staffs; Visiting Surgeon, Charity Hospital of Louisiana at New Orleans. *(p. 13).*

NEEFE, JOHN R., M.D., F.A.C.P., St. Petersburg, Fla. Formerly Teaching Staff, Department of Medicine, Hospital of the University of Pennsylvania and University of Pennsylvania Medical School; Staff Member, Mt. Park and St. Anthony's Hospitals. *(p. 17).*

NIGHTINGALE, EDWARD J., M.D., F.A.C.G., New York, N. Y. Associate Clinical Professor of Medicine, New York Medical College. *(p. 12).*

OCHS, LOUIS Jr., M.D., F.A.C.G., New Orleans, La. Clinical Associate Professor of Medicine, Louisiana State University School of Medicine. *(p. 12).*

OCHSNER, ALTON, B.A., M.D., D.Sc. (Hon.), F.A.C.S., F.A.C.G. (Hon.), New Orleans, La. Professor of Surgery, Tulane University School of Medicine; Director of Surgery, Ochsner Clinic and Ochsner Foundation Hospital. *(p. 12).*

VISIT THE EXHIBITS

OGDEN, W. W., Jr., M.D., New Orleans, La. Clinical Assistant in Surgery, Louisiana State University School of Medicine. *(p. 26).*

PAMUKCU, FEVZI, M.D., Chicago, Ill. Resident, Cook County Hospital. *(p. 13).*

PARKER, DOUGLAS B., M.D., D.D.S., New Orleans, La. Professor of Oral Surgery, Loyola University; Senior Attending, Charity Hospital of Louisiana at New Orleans. *(p. 19).*

PATTON, T. B., B.S., M.D., Birmingham, Ala. Associate Professor of Surgery, Medical College of Alabama. *(p. 23).*

PAYZANT, ARTHUR R., M.D., New Orleans, La. Associate Professor, Tulane University School of Medicine; Radiologist and Head of Department of Radiology, Touro Infirmary. *(pp. 12, 15).*

PENICK, RAWLEY M., Ph.B., M.D., New Orleans, La. Professor of Clinical Surgery, Tulane University School of Medicine; Surgeon, Ochsner Clinic. *(p. 21).*

PREVATT, AMOS L., B.S., M.D., New Orleans, La. Fellow in Medicine, Tulane University School of Medicine. *(p. 31).*

RAMOS, PEDRO, B.S., M.D., F.A.C.G., Mexico, D.F. Professor, Second Course Clinic of Gastroenterology, University of Mexico; Chief, Medical Department, Secretary of Communications. *(p. 25).*

RAY, JOHN E., M.D., New Orleans, La. Instructor in Surgery, Tulane University School of Medicine; Ochsner Foundation Hospital; Touro Infirmary; Charity Hospital of Louisiana at New Orleans. *(p. 26).*

REBOLLEDO, MARIO, B.S., M.D., F.A.C.G., Mexico, D.F. Professor, Clinic of Gastroenterology, University of Mexico; Internist, General Hospital. *(p. 32).*

RIVES, JAMES D., B.S., M.D., F.A.C.G. (Hon.), New Orleans, La. Professor and Head, Department of Surgery, Louisiana State University School of Medicine; Surgeon-in-Chief; Louisiana State University Service, Charity Hospital of Louisiana at New Orleans; Consultant in Surgery, Touro Infirmary, Veterans, Lafayette, Charity and United States Public Health Service Hospitals. *(p. 12).*

ROSENBERG, DENNIS, B.Sc., Hons., M.B., Ch.B., F.A.C.S., New Orleans, La. Assistant Professor Clinical Surgery, Tulane University School of Medicine. *(p. 25).*

ROSENTHAL MILTON, M.D., Los Angeles, Calif. Pathologist, Los Angeles County General, Crenshaw and Culver City Hospital. *(p. 25).*

ROSS, DONALD E., M.D., F.R.C.S. (Eng.), F.R.C.S. (Edin.), F.R.A.C., F.A.C.G., Los Angeles, Calif. Teaching Staff, Queen of Angel Hospital. *(p. 16).*

RYAN, ROBERT F., M.D., New Orleans, La. Instructor, Department of Surgery, Tulane University School of Medicine. *(p. 22).*

SALTER, PAUL P., Jr., B.A., M.D., Birmingham, Ala. Assistant Professor of Surgery, Medical College of Alabama. *(p. 26).*

SAMON, DAVID J., M.D., Cleveland, Ohio. Fellow in Gastroenterology, Huron Road Hospital. *(p. 15).*

SANDERS, ROBERT L., M.D., Memphis, Tenn. Professor of Surgery (inactive), University of Tennessee College of Medicine; Active Staff, Baptist Memorial Hospital. *(p. 17).*

SARTIN, JACK, M.D., Clarksdale, Miss. *(p. 21).*

SCHARFF, EARL U., Jr., M.D., F.A.C.G., Memphis, Tenn. Assistant in Medicine, University of Tennessee College of Medicine; Staff Physician, Veterans Administration Medical Teaching Group Hospital; Attending Staff, John Gaston Hospital. *(p. 32).*

SEGALOFF, ALBERT, B.S., M.S., M.D., New Orleans, La. Ochsner Foundation Hospital *(p. 14).*

VISIT THE EXHIBITS

SHAIKEN, JOSEPH, Sc.M., M.D., F.A.C.G., Milwaukee, Wisc. Associate Professor of Medicine, Marquette University School of Medicine; Chairman, Department of Gastroenterology, Milwaukee County Hospital. *(p. 11).*

SHRIFTER, HAROLD, M.D., Ft. Lee, Va. Resident, Cook County Hospital. *(p. 13).*

SINGLETON, ALBERT O., Jr., M.D., Galveston, Texas. Associate Professor of Surgery, University of Texas Medical Branch; Attending Surgeon, University of Texas Hospitals. *(p. 26).*

SKELTON, FLOYD R., M.D., Ph.D., New Orleans, La. Associate Professor of Pathology, Louisiana State University School of Medicine; Director of Research, Urban Maes Research Foundation; Visiting Scientist, Charity Hospital of Louisiana at New Orleans. *(p. 14).*

SNAPPER, I., M.D., Ph.D., F.A.C.G. (Hon.), Brooklyn, N. Y. Director of Medical Education, Beth-El Hospital. *(p. 21).*

SPENCER, ROWENA, B.S., M.D., New Orleans, La. Assistant Professor, Department of Surgery, Louisiana State University School of Medicine; Visiting Surgeon, Charity Hospital of Louisiana at New Orleans; Active Staff, Touro Infirmary, Hotel Dieu and Sara Mayo Hospital. *(p. 19).*

STEIGMANN, FREDERICK, M.D., M.S., F.A.C.G., Chicago, Ill. Associate Professor of Medicine, University of Illinois; Attending Physician, Cook County Hospital. *(p. 13).*

STERLING, JULIAN A., M.D., Sc.D., F.A.C.G., Philadelphia, Pa. Assistant Professor of Surgery, University of Pennsylvania Graduate School of Medicine; Senior Attending Surgeon, Albert Einstein Medical Center. *(p. 11).*

STERNBERG, WILLIAM H., M.D., A.B., New Orleans, La. Professor of Pathology, Tulane University School of Medicine; Visiting Pathologist, Charity Hospital of Louisiana at New Orleans. *(p. 12).*

STEVENS, MONICA R., B.S., M.T., Los Angeles, Calif. Research Technician, Los Angeles County General and Crenshaw Hospitals. *(p. 25).*

STRUG, LAWRENCE H., M.D., B.S., New Orleans, La. Clinical Professor of Surgery, Louisiana State University School of Medicine; Chief of Surgery, Touro Infirmary. *(p. 20).*

SUDDUTH, PERRY G., B.S., M.D., New Orleans, La. Chief Resident, Louisiana State University Surgical Service, Charity Hospital of Louisiana at New Orleans. *(p. 21).*

SWARTZWELDER, J. C., Ph.D., New Orleans, La. Professor of Parasitology, Louisiana State University School of Medicine; Consultant in Parasitology, Veterans Hospital, New Orleans, La. *(p. 24).*

TRONCALE, FRANK, B.S., New Orleans, La. *(p. 13).*

UNGLAUB, WALTER G., M.D., New Orleans, La. Associate Professor of Medicine, Tulane University School of Medicine; Senior Visiting Physician, Charity Hospital of Louisiana at New Orleans. *(p. 25).*

WANGENSTEEN, OWEN H., B.A., M.D., Ph.D., Minneapolis, Minn. Professor and Chairman, Department of Surgery, University of Minnesota School of Medicine. *(p. 21).*

WIRTS, C. WILMER, M.D., F.A.C.G., Philadelphia, Pa. Associate Professor of Medicine and Head of the Division of Gastroenterology, The Jefferson Medical College and Hospital. *(p. 12).*

WREN, HERBERT, M.D., New Orleans, La. Resident in Surgery, Tulane Service, Charity Hospital of Louisiana at New Orleans. *(p. 26).*

YIOTSAS, ZESSINOS D., M.D., Philadelphia, Pa. Resident in Gastroenterology. *(p. 13).*

VISIT THE EXHIBITS

Business Sessions

SATURDAY, 18 OCTOBER 1958

All Day

Various committee meetings at times and places to be arranged by committe chairmen.

SUNDAY, 19 OCTOBER 1958

9:00 A.M.

Annual Meeting of the Board of Trustees–Room 3.

1:00 P.M.

Luncheon, Board of Trustees and Board of Governors–Rooms 4 and 5.

3:00 P.M.

Annual Meeting of the American College of Gastroenterology–Room 2.

6:30 P.M.

CONVOCATION: Presentation of Certificates–Tulane Room.
See special program.

8:30 P.M.

Buffet Supper–Tulane Room. Sponsored by William H. Rorer, Inc. (Admission by card only, to be obtained at the Convocation Ceremony).

MONDAY, 20 OCTOBER 1958

5:00 P.M.

Meeting of the Credentials Committee

TUESDAY, 21 OCTOBER 1958

4:00 P.M.

Annual Meeting of the Board of Governors–Room 3.

WEDNESDAY, 22 OCTOBER 1958

12:30 P.M.

Luncheon Meeting of the Board of Trustees–Room 3.

VISIT THE EXHIBITS

SCIENTIFIC SESSIONS

FIRST SESSION

MONDAY MORNING, 20 OCTOBER 1958

8:30-9:30 A.M. *Coffee and sweet rolls will be served in the Exhibit Area with the compliments of the House of Seagram. Coffee only will be served through 11:30 A.M.*

C. WILMER WIRTS, M.D., F.A.C.G., President, American College of Gastroenterology, presiding.

9:00 A.M.

1. "Ulcerative Colitis in a Southern General Hospital: A Concept of Etiology."

Speakers

DR. JOHN M. MCMAHON, Bessemer, Ala, and DR. BENJAMIN F. MORTON, Birmingham, Ala. (By invitation.)

9:20 A.M.

General Discussion.

9:30 A.M.

2. "Mortality Associated With Biliary Tract Disease".

Speaker

DR. JULIAN A. STERLING, Philadelphia, Pa.

9:50 A.M.

General Discussion.

10:00 A.M. Recess to visit the commercial, technical and scientific exhibits.

10:30 A.M.

3. "Duodenal Ulcer in Children".

Speaker

DR. JOSEPH SHAIKEN, Milwaukee, Wisc.

10:50 A.M.

General Discussion.

VISIT THE EXHIBITS

11:00 A.M.

4. "The Gastroenterological Aspects of Periarteritis Nodosa".

Speaker

DR. EDWARD J. NIGHTINGALE, New York, N. Y.

11:20 A.M.

General Discussion.

11:30 A.M.

5. "Postgastrectomy Steatorrhea".

Speakers

DR. C. WILMER WIRTS, Philadelphia, Pa. and DR. FRANZ GOLDSTEIN, Philadelphia, Pa. (By invitation).

11:50 A.M.

General Discussion.

12:30 P.M.

LUNCHEON—Sponsored by Burton, Parsons & Co.—Charcoal Room. (admission by card only, to be obtained at the registration desk).

"New Orleans–A la Mode".

Speaker

MR. CHARLES DUFOUR.

SECOND SESSION

MONDAY AFTERNOON, 20 OCTOBER 1958

JOSEPH SHAIKEN, M.D., F.A.C.G., Vice-President, American College of Gastroenterology, presiding.

2:00 P.M.

6. PANEL DISCUSSION ON GASTRIC CARCINOMA.

Moderator

DR. LOUIS OCHS, JR., New Orleans, La.

Participants:

DR. JAMES D. RIVES, New Orleans, La.
DR. ARTHUR R. PAYZANT, New Orleans, La. (By invitation).
DR. W. D. DAVIS, JR., New Orleans, La. (By invitation).
DR. GORDON MCHARDY, New Orleans, La. (By invitation).
DR. ALTON OCHSNER, New Orleans, La.
DR. WILLIAM H. STERNBERG, New Orleans, La. (By invitation).

VISIT THE EXHIBITS

3:15 P.M.—Question and answer period.

3:30 P.M. Recess to visit the commercial, technical and scientific exhibits.

4:00 P.M.

7. "Gallbladder and Liver Lymphatics—An Experimental and Clinical Study".

Speakers

DR. JAMES T. NIX, New Orleans, La., DR. FRANK TRONCALE, New Orleans, La. (By invitation) and DR. WILLIAM CONKLIN, New Orleans, La. (By invitation).

4:20 P.M.
General Discussion.

4:30 P.M.

8. "Vitamin K Therapy in Liver Disease: Need for a Reevaluation".

Speakers

DR. FREDERICK STEIGMANN, Chicago, Ill., DR. HAROLD SHRIFTER, Ft. Lee, Va. (By invitation) DR. ZESSIMOS D. YIOTSAS, Philadelphia, Pa. (By invitation) and DR. FEVZI PAMUKCU, Chicago, Ill. (By invitation).

4:50 P.M.
General Discussion.

THIRD SESSION

TUESDAY MORNING, 21 OCTOBER 1958

8:30-9:30 A.M. *Coffee and sweet rolls will be served in the Exhibit Area with the compliments of the House of Seagram. Coffee only will be served through 11:30 A.M.*

HENRY BAKER, M.D., F.A.C.G., Vice-President, American College of Gastroenterology, presiding.

9:00 A.M.

9. "The Frequent Association of Other Body Tumors With Familial Polyposis".

Speaker

DR. DONALD C. COLLINS, Hollywood, Calif.

VISIT THE EXHIBITS

9:20 A.M.
General Discussion.

9:30 A.M.

10. "Primary Idiopathic Segmental Infarction of the Greater Omentum: A Collective Review and Report of a Case".

Speakers

DR. J. E. DUGAS, JR., Chalmette, La. (By invitation) and DR. E. L. BURKE, New Orleans, La. (By invitation).

9:50 A.M.
General Discussion.

10:00 A.M. Recess to visit the commercial, technical and scientific exhibits.

10:30 A. M.

11. PANEL DISCUSSION ON STEROIDS IN GASTROENTEROLOGY.

Moderator

DR. MURREL H. KAPLAN, New Orleans, La.

Participants:

DR. ALBERT SEGALOFF, New Orleans, La. (By invitation).
DR. FLOYD R. SKELTON, New Orleans, La. (By invitation).
DR. FREDERICK FITZHERBERT BOYCE, New Orleans, La. (By invitation).
DR. PAUL M. HYDE, New Orleans, La. (By invitation).

11:45 A.M.—Question and answer period.

FOURTH SESSION

TUESDAY AFTERNOON, 21 OCTOBER 1958

LOUIS OCHS, JR., M.D., F.A.C.G., Vice-President, American College of Gastroenterology, presiding.

2:00 P.M.

12. "Gastrointestinal Mechanical and Electrical Activities After Gastrectomy".

Speakers

DR. HENRY COLCHER, New York, N. Y., DR. EDMUND N. GOODMAN, New York, N. Y. (By invitation) and GEORGE M. KATZ, New York, N. Y. (By invitation).

VISIT THE EXHIBITS

2:20 P.M.

General Discussion.

2:30 P.M.

13. "Use of Hypaque as Contrast Medium in Gastrointestinal Examination".

Speakers

DR. BENJAMIN O. MORRISON, New Orleans, La., DR. ARTHUR R. PAYZANT, New Orleans, La. (By invitation), DR. TIMOTHY HALEY, New Orleans, La. (By invitation), DR. GEORGE GENTNER, New Orleans, La. (By invitation) and DR. JOSE PAGAN CARLO, New Orleans, La. (By invitation).

2:50 P.M.

General Discussion.

3:00 P.M. Recess to visit the commercial, technical and scientific exhibits.

3:30 P.M.

14. "Volume of N/10 Hydrochloric Acid Neutralized Per Day in the Treatment of Peptic Ulcer".

Speakers

DR. EDWARD A. MARSHALL, Cleveland, Ohio and DR. DAVID J. SAMON, Cleveland, Ohio (By invitation).

3:50 P.M.

General Discussion.

4:00 P.M.

ABRAHAM L. LEVIN MEMORIAL LECTURE

15. "Regional Ileitis; Ileojejunitis; Ileocolitis".

Speaker

DR. BURRILL B. CROHN, New York, N. Y. (By invitation).

7:00 P.M.

ANNUAL DINNER DANCE—TULANE ROOM, Jung Hotel, New Orleans, La.

VISIT THE EXHIBITS

FIFTH SESSION

WEDNESDAY MORNING, 22 OCTOBER 1958

8:30-9:30 A.M. *Coffee and sweet rolls will be served in the Exhibit Area with the compliments of the House of Seagram. Coffee only will be served through 11:30 A.M.*

EDWARD J. KROL, M.D., F.A.C.G., Vice-President, American College of Gastroenterology, presiding.

9:00 A.M.

16. "Cardiac Symptoms Masking Gastrointestinal Pathology".

Speaker

DR. HENRY A. MONAT, Washington, D. C.

9:20 A.M.
General Discussion.

9:30 A.M.

17. "Cancer of the Pancreas."

Speaker

DR. DONALD E. ROSS, Los Angeles, Calif.

9:50 A.M.
General Discussion.

10:00 A.M. Recess to visit the commercial, technical and scientific exhibits.

10:30 A.M.

18. "Acute Intermittent Hepatic Porphyria—A Cause of Unexplained Abdominal Pain".

Speaker

DR. JEROME A. ECKER, Santa Barbara, Calif.

10:50 A.M.
General Discussion.

11:00 A.M.

19. "The Mechanism of Bromsulfalein Excretion".

Speakers

DR. LEE S. MONROE, La Jolla, Calif. and ALICE KITTINGER, La Jolla, Calf. (By invitation).

VISIT THE EXHIBITS

11:20 A.M.

General Discussion.

11:30 A.M.

20. "Recurrent Stomal Ulcer, Refractive to Repeated Operative Procedures: An Additional Case of Ulcerogenic Tumor of the Pancreas".

Speakers

DR. TURLEY FARRAR, Memphis, Tenn., DR. ROBERT P. MCBURNEY, Memphis, Tenn. (By invitation) and DR. ROBERT L. SANDERS, Memphis, Tenn. (By invitation).

11:50 A.M.

General Discussion.

SIXTH SESSION

WEDNESDAY AFTERNOON, 22 OCTOBER 1958

DONOVAN, C. BROWNE, M.D., F.A.C.G., (Hon.), American College of Gastroenterology, presiding.

2:00 P.M.

21. PANEL DISCUSSION ON FUNCTIONAL DISTURBANCES OF THE GASTROINTESTINAL TRACT.

Moderator

DR. DONOVAN C. BROWNE, New Orleans, La.

Participants:

DR. J. ARNOLD BARGEN, Rochester, Minn. (By invitation).
DR. JOHN R. NEEFE, St. Petersburg, Fla. (By invitation).
DR. FRANK B. MCGLONE, Denver, Colo. (By invitation).
DR. HAROLD I. LIEF, New Orleans, La. (By invitation).

VISIT THE EXHIBITS

3:15 P.M.—Question and answer period.

3:30 P.M. Recess to visit the commercial, technical and scientific exhibits.

4:00 P.M.

22. "Norethandrolone in the Postgastrectomy State: Effect on Weight Loss".

Speaker

DR. JACOB LICHSTEIN, Los Angeles, Calif.

4:20 P.M.

General Discussion.

4:30 P.M.

23. "Submucous Lipoma of Colon".

Speakers

DR. I. W. KAPLAN, New Orleans, La. (By invitation) and DR. RALPH J. MEIER, New Orleans, La. (By invitation).

4:50 P.M.

General Discussion.

VISIT THE EXHIBITS

COURSE IN POSTGRADUATE GASTROENTEROLOGY

SURGICAL COORDINATOR AND CO-CHAIRMAN
OWEN H. WANGENSTEEN, B.A., M.D., PhD., Minneapolis, Minn.

MEDICAL COORDINATOR AND CO-CHAIRMAN
I. SNAPPER, M.D., Ph.D., F.A.C.G. (Hon.), Brooklyn, N. Y.

FIRST SESSION

THURSDAY MORNING, 23 OCTOBER 1958

Attendance at the Postgraduate Course is limited to those who have registered and paid the matriculation fee.

8:30-9:30 A.M. *Coffee and sweet rolls will be served in the Exhibit Area with the compliments of the House of Seagram. Coffee only will be served through 11:30 A.M.*

FRANK J. BORRELLI, M.D., F.A.C.G., President, American College of Gastroenterology, presiding.

9:00 A.M.
Address of Welcome—

9:05 A.M.
1. "Lesions Involving the Oral Mucosa".
Speaker
DR. DOUGLAS B. PARKER, New Orleans, La.

9:25 A.M.
Discussion

9:35 A.M.
2. "Congenital Anomalies of the Gastrointestinal Tract".
Speaker
DR. ROWENA SPENCER, New Orleans, La.

9:55 A.M.
Discussion

VISIT THE EXHIBITS

10:05 A.M. Recess to visit the commercial, technical and scientific exhibits. (Exhibits close at 2:00 P.M.).

10:35 A.M.

3. "Surgery of Benign Lesions of the Esophagus".

Speakers

DR. LAWRENCE H. STRUG, New Orleans, La. and DR. WILLLIAM LEON, New Orleans, La.

10:55 A.M.
Discussion

11:05

4. "Hiatal Hernia".

Speaker

DR. CLAUDE C. CRAIGHEAD, New Orleans, La.

11:25
Discussion

11:35 A.M.

5. "Benign Polyps of the Duodenum".

Speakers

DR. JAMES T. MCQUITTY, New Orleans, La. and DR. MORRIS LEVY, New Orleans, La.

11:55 A.M.
Discussion

SECOND SESSION

THURSDAY AFTERNOON, 23 OCTOBER 1958.

Attendance at the Postgraduate Course is limited to those who have registered and paid the matriculation fee.

This entire session will be held in the Auditorium of the Louisiana State University School of Medicine.

CARL J. TRIPOLI, M.D., F.A.C.G., presiding.

VISIT THE EXHIBITS

2:00 P.M.

6. CLINICAL PATHOLOGICAL CONFERENCE

Chairman

Dr. Ambrose J. Hertzog, New Orleans, La.

Participants

Dr. Owen H. Wangensteen, Minneapolis, Minn.
Dr. I. Snapper, Brooklyn, N. Y.

3:30 P.M. Recess

3:45 P.M.

7. "Giant Ulcers of the Stomach".

Speakers

Dr. Isidore Cohn, Jr., New Orleans, La., Dr. Jack Sartin, Clarksdale, Miss. and Dr. Perry Sudduth, New Orleans, La.

4:05 P.M.

Discussion

4:15 P.M.

8. "Gastric Resection: Pathophysiology and Management of Certain Complications".

Speaker

Dr. James D. Hardy, Jackson, Miss.

4:35 P.M.

Discussion

4:45 P.M.

9. "Results in the Surgical Treatment of Peptic Ulcer".

Speakers

Dr. Rawley M. Penick, New Orleans, La. and Dr. Raul Armstrong, New Orleans, La.

5:05 P.M.

Discussion

VISIT THE EXHIBITS

THIRD SESSION

FRIDAY MORNING, 24 OCTOBER 1958

Attendance at the Postgraduate Course is limited to those who have registered and paid the matriculation fee.

This session and all subsequent sessions will again be held at the Jung Hotel.

James T. Nix, M.D., F.A.C.G., presiding.

9:00 A.M.

10. "Treatment of Gastrointestinal Neoplasms by Perfusion".

Speakers

DR. OSCAR CREECH, JR., New Orleans, La., DR. EDWARD T. KREMENTZ, New Orleans, La. and DR. ROBERT F. RYAN, New Orleans, La.

9:20 A.M.

Discussion

9:30 A.M.

11. "Amebic Abscess of the Liver".

Speaker

DR. WALTON R. AKENHEAD, New Orleans, La.

9:50 A.M.

Discussion

10:00 A.M.

12. "Infectious Hepatitis".

Speaker

DR. OSCAR BLITZ, New Orleans, La.

10:20 A.M.

Discussion

10:30 A.M. Recess

10:45 A.M.

13. "Indications for and Advantages of Combined Supra- and Transduodenal Exploration of the Common Bile Duct".

Speaker

DR. HOWARD MAHORNER

VISIT THE EXHIBITS

11:05 A.M.
Discussion

11:15 A.M.

14. "The Splenic Approach to the Portal Circulation".

Speaker

DR. WILLIAM D. DAVIS, JR., New Orleans, La.

11:35 A.M.
Discussion

11:45 A.M.

15. "Lateral Portacaval Anastomosis for Portal Hypertension—Clinical Results in 57 Patients with Intrahepatic Portal Bed Block and 7 Patients with Extrahepatic Portal Bed Block".

Speakers

DR. T. B. PATTON, Birmingham, Ala., DR. C. G. JOHNSTON, Detroit, Mich., DR. CHAMP LYONS, Birmingham, Ala. and DR. PRESCOTT JORDAN, JR., Detroit, Mich.

12:05 P.M.
Discussion

12:30 P.M.

BUFFET LUNCHEON—Charcoal Room (Admission by card only).

FOURTH SESSION

FRIDAY AFTERNOON, 24 OCTOBER 1958

Attendance at the Postgraduate Course is limited to those who have registered and paid the matriculation fee.

IRVING A. LEVIN, M.D., F.A.C.G., presiding.

2:00 P.M.

16. "Experience with Bacillary Dysentery".

Speaker

DR. HARRY E. DASCOMB, New Orleans, La.

VISIT THE EXHIBITS

2:20 P.M.
Discussion

2:30 P.M.

17. "Chagas Disease, A Possible Cause of Megaesophagus and Megacolon".

Speaker

DR. RODNEY C. JUNG, New Orleans, La.

2:50 P.M.
Discussion

3:00 P.M. Recess

3:15 P.M.

18. "Recent Developments in the Treatment of Intestinal Parasites".

Speakers

DR. WILLIAM W. FRYE, New Orleans, La. and DR. J. C. SWARTZWELDER, New Orleans, La.

3:35 P.M.
Discussion

3:45 P.M.

19. "Strongyloidiasis—Treatment with Dithiazanine".

Speakers

DR. JOHN P. MUHLEISEN, New Orleans, La. and DR. J. C. SWARTZWELDER, New Orleans, La.

4:05 P.M.
Discussion

4:15 P.M.

20. "Certain Relationships of the Irritable Colon and Cardiovascular System".

Speaker

DR. SHEA HALLE, New Orleans, La.

4:35 P.M.
Discussion

VISIT THE EXHIBITS

FIFTH SESSION

SATURDAY MORNING, 25 OCTOBER 1958

Attendance at the Postgraduate Course is limited to those who have registered and paid the matriculation fee.

MURREL H. KAPLAN, M.D., F.A.C.G., presiding.

9:00 A.M.

21. "Gastrointestinal Syndromes of Vascular Origin".

Speaker

DR. DENNIS ROSENBERG, New Orleans, La.

9:20 A.M.

Discussion

9:30 A.M.

22. "Vitamin B_{12} and the Malabsorption Syndrome".

Speakers

DR. GRACE A. GOLDSMITH, New Orleans, La., DR. FRED M. HUNTER, New Orleans, La., DR. AMOS L. PREVATT, New Orleans, La. and DR. WALTER G. UNGLAUB, New Orleans, La.

9:50 A.M.

Discussion

10:00 A.M.

23. "The Surgical Aspects of Diverticulitis of the Colon".

Speaker

DR. C. J. MIANGOLARRA, New Orleans, La.

10:20 A.M.

Discussion

10:30 A.M. Recess

10:45 A.M.

24. "Epidemic Nonicteric Viral Hepatitis".

Speakers

DR. LESTER M. MORRISON, Los Angeles, Calif., DR. MITSOU INOUYE, Los Angeles, Calif., DR. ROBERT E. HOYT, Los Angeles, Calif., DR. MILTON ROSENTHAL, Los Angeles, Calif. and MONICA R. STEVENS, Los Angeles, Calif.

VISIT THE EXHIBITS

11:05 A.M.
Discussion

11:15 A.M.
25. "Carcinoid of the Rectum".
Speakers
DR. PATRICK H. HANLEY, New Orleans, La., DR. MERRILL O. HINES, New Orleans, La. and DR. JOHN E. RAY, New Orleans, La.

11:35 A.M.
Discussion

11:45 A.M.
26. "Meckel's Diverticulum".
Speakers
DR. M. L. MICHEL, New Orleans, La., DR. HERBERT WREN, New Orleans, La. and DR. W. W. OGDEN, JR., New Orleans, La.

12:05 P.M.
Discussion

12:15 P.M.
27. "Penetrating Wounds of the Abdomen".
Speakers
DR. ROBERT M. MOORE, Galveston, Texas and DR. ALBERT O. SINGLETON, JR., Galveston, Texas.

12:35 P.M.
Discussion

12:45 P.M.
28. "Gastric Hemorrhage as a Complication of Flail Chest".
Speakers
DR. PAUL P. SALTER, JR., Birmingham, Ala. and DR. CHAMP LYONS, Birmingham, Ala.

1:05 P.M.
Discussion

VISIT THE EXHIBITS

SCIENTIFIC EXHIBITS

BOOTHS S-1, 2 & 3 **"The Gastric Analysis: Its Diagnostic and Therapeutic Implications".**

DR. J. ALFRED RIDER, DR. HUGO C. MOLLER, DR. JOHN O. GIBBS, JOYCE SWADER, DR. LOURDES O. AGCAOILI, DR. JENNIE LEE, DR. RICHARD G. DEVEREAUX and DR. ERNESTO PULETTI, San Francisco, Calif.

This exhibit represents a five-year clinical study of over 2,000 gastric analyses. The role of the gastric analysis in diagnosis and its usefulness as a guide to therapy will be emphasized. Hyperacidity and increased pepsin, with its counterpart uropepsin, are usually found in duodenal ulcer. The diagnostic value of the histamine test, using histalog as a stimulant, is presented. In cases of gastric ulcer hyperacidity and increased pepsin are usually normal or low, while achlorhydria is not infrequently found to be associated with gastric carcinoma or atrophic gastritis. It is shown that routine cytological examination of the gastric aspirate is invaluable for the diagnosis of gastric carcinoma. The best objective means of determining the effectiveness of antisecretory drugs, as well as the effectiveness of x-ray therapy to the stomach for the treatment of peptic ulcer, is the gastric analysis. The differences found in individual response to corticosteroids and Reserpine may indicate those patients who are more likely to develop drug-induced peptic ulcer.

BOOTHS S-4 & 5 **"The Papilla".**

DR. JULIAN A. STERLING, Philadelphia, Pa.

This is an anatomic study of untraumatized specimens of the terminal segment of the bile duct. Observation of specimens through methyl salicylate solution, displays the terminal segment of the bile and pancreatic ducts and depicts the relationship among the course of the bile duct, the pancreatic duct, the papillary sphincters, and—when it exists—the "common channel". It is observed that both the bile and the pancreatic ducts terminate through a papilla (or mass) rather than through an "ampulla" (or space). This is as described by Oddi, Dardinski, Boyden and others.

The exhibit also reports the existence of abnormal routes for bile flow, some of which are found associated with pancreatitis. The existence of interductal reflux alone is not found to be a factor on the etiology of pancreatitis in this series.

BOOTH S-6 **"Management of Gastric Ulcer".**

DR. WILLIAM H. BACHRACH, DR. LEO KAPLAN and DR. VERNON LIEBERMAN, Los Angeles, Calif.

Out of a study of some 200 cases of gastric ulcer, a plan of management has evolved which permits the proper decision as to whether a case should be handled medically or surgically. The plan is based on the application of a therapeutic test in all cases in which the ulcer is not obviously malignant, as proposed by Sara Jordan. Several illustrative cases are chosen to indicate the possible sequence of events in the therapeutic test with the appropriate decision to be made in each situation. A tabulation of the results to date shows the incidence of malignancy in gastric ulcers, rate of operation and of recurrence.

BOOTH S-7 **"Intestinal Biopsy Capsule".**

LT. COL. W. H. CROSBY, M.C., COL. B. H. SULLIVAN, JR., M.C., MAJ. R. B. W. SMITH, M.C., Washington, D.C.

An instrument has been developed for obtaining biopsy material from the small intestine of the unanesthetized human. It consists of a capsule 11 x 17 mm. containing a rotating, spring-activated knife which is triggered by suction. Suction also draws the specimen of mucosa through a port in the wall of the capsule before the knife is sprung. When a biopsy is to be taken the knife is "cocked" and the capsule is swallowed. It is held captive on a 2 mm.

polyethylene catheter which also serves to transmit suction and to retrieve the capsule after the biopsy has been taken. Because the mucosa is sucked away from the muscularis when the biopsy is taken, the knife does not cut deeply into the bowel wall, and detectable bleeding has not been encountered.

A brief motion picture film will be shown to demonstrate the application of the biopsy capsule to problems of clinical investigation and diagnosis. A collection of photomicrographs will also be presented to show normal and abnormal specimens of human intestinal mucosa at various stages of the absorptive process.

BOOTHS S-8 & 9 **"Gallstones and Cholecystitis".**

DR. BELA HALPERT, Houston, Texas

The exhibit contains information on the formation of gallstones and their composition and their relation to cholecystitis. Gallstones are classified according to chemical composition and their formation related to disturbances producing them. Colored transparencies portray the various types of gallstones and surgically removed gallbladders containing biliary calculi. Changes in chronic cholecystitis with superimposed acute cholecystitis are featured with photomicrographs illustrating the changes.

BOOTHS S-10 & 11 **"Sustained Release Medication in the Treatment of Gastrointestinal Disturbances".**

DR. FREDERICK STEIGMANN and DR. LUDWIG KAMINSKI, Chicago Ill.

In the treatment of peptic ulcer, a constant lowering of the acidity and spasticity factors is desirable. The original Sippy regimen owed much of its success to the fact that the above requirement was met. In recent years, however, it has become increasingly difficult to have patients adhere to a regimen which requires hourly intake of medication. The recent advent of some of the newer anticholinergic substances has given the clinician some help in treating these patients, although the patients still require medication every three to four hours in order to keep the acidity of the gastric juice at a low level. Hence, the various preparations of sustained release medication which have been recently introduced seem to fill a need because a patient will more readily adhere to a regimen which requires the taking of medication only every 8 to 12 hours.

With the aid of drawings and tables, the factors of acidity and spasticity in the peptic ulcer diathesis and the factors of spasticity in functional bowel conditions are presented.

BOOTH S-35 **"Effective Broad Spectrum Intestinal Anthelmintic Activity of Dithiazanine".**

DR. J. C. SWARTZWELDER, DR. W. W. FRYE, DR. J. P. MUHLEISEN, DR. J. H. MILLER, DR. R. LAMPERT, DR. A. PENA CHAVARRIA, DR. S. H. ABADIE, DR. R. W. SAPENFIELD, DR. S. O. ANTHONY, DR. L. J. COCO, DR. C. B. CARSON, JR., DR. P. E. ROBERTSON AND DR. J. F. HEBERT, New Orleans, La.

The exhibit presents the results of therapy of over 400 persons with single or multiple helminth infections with dithiazanine. These results demonstrate the effective broad range of anthelmintic activity of this therapeutic against human strongyloidiasis, trichuriasis, ascariasis, enterobiasis and hookworm infection. The exhibit introduces the principle of effective polyvermicidal or broad spectrum anthelmintic activity against common intestinal helminthiases of man. Previously there has been no effective or practicable therapeutics for strongyloidiasis or trichuriasis. The world prevalence of the 5 helminths for which this anthelmintic is curative is graphically shown. Models of the worms and their diagnostic stages are exhibited. A series of kodachromes illustrates the clinical significance of these helminthiases. Treatment schedules employed effectively are presented.

TECHNICAL EXHIBITORS

(Those attending the Convention sessions are urged to take advantage of the time in between the presentation of papers and sessions, to visit the technical exhibits and become acquainted with the many new products and new equipment on display.)

ABBOTT LABORATORIES, North Chicago, Ill. (Booth 30). Members of the medical profession will be cordially welcomed at their exhibit of leading specialities and new products. Their representatives will be available at their exhibit to give information on the products and to answer any questions you may have.

AMES COMPANY, INC. Elkhart, Ind. (Booth 22), will feature the latest developments in new simplified diagnostic products, which are adaptable to routine examination and patient management. The many advantages of the new diagnostic products are quickly demonstrable, and you are cordially invited to stop at their booth to see them.

BURTON, PARSONS & CO., Washington, D. C. (Booth 29), cordially invite you to their booth where information, samples and literature will be available for their *EKG Sol,* the modern electrode cream for eletrocardiography and electroencephalography, along with their original bulk preparations, *Konsyl* and *L. A. Formula. L. A. Formula* contains 50 per cent bulk producing material dispersed in an equal amount of lactose and dextrose. *Konsyl,* on the other hand, contains 100 per cent bulk producing material and is certainly the product of choice for the obese, the diabetic, and others with restricted caloric diets.

CAMERON SURGICAL INSTRUMENT CO., Chicago, Ill. (Booth 26).

THE COCA-COLA COMPANY, Atlanta, Ga. (Booth 24). Ice-cold Coca-Cola served through the courtesy and cooperation of The Louisiana Coca-Cola Bottling Co., Ltd., New Orleans, La., and The Coca-Cola Company.

EDER INSTRUMENT CO. INC., Chicago, Ill. (Booth 23), will exhibit a complete new line of gastroscopes, Shiner "jejunal" biopsy tube, "Wood type" gastric biopsy tube. The new Raskin cytology spray tube will also be shown for the first time. A visit to their booth will as always be of great interest to the gastroscopist.

ENCYCLOPAEDIA BRITANNICA, Chicago, Ill. (Booth 28), proudly announces the release of a *Brand New Edition.* Thirteen years of intensive editorial effort, representing an investment of more than *Five Million Dollars* is reflected in this New Edition. You are cordially invited to inspect the *Finest Britannica* ever published and to avail yourselves of the most sensational offer ever made.

E. FOUGERA & COMPANY, INC., Hicksville, N. Y. (Booth 18), will feature the new oral cholecystographic contrast medium, *Orabilex,* in a pseudo-scientific exhibit describing experience in over 1,000 procedures. *Orabilex* provides 1 standard dosage for all patients, eliminates costly repeat studies, avoids confusing intestinal opacities, increases diagnostic accuracy, and prevents fewer side-effects than any other media. Samples and literature will be available.

THE MARK COMPANY, Randolph, Mass. (Booth 17), will exhibit their Mark-Blank Gastro Autoflush. This clinically proven, automatically flushing unit will be demonstrated and information will be given by the inventor. Other equipment, including the Mechanical Heart-Lung, Heart Defibrillator, etc., will also be exhibited.

MEAD JOHNSON & COMPANY, Evansville, Ind. (Booth 34). Their exhibit has been arranged to give you the optimum in quick service and complete product information. To make your visit to their booth productive, specially trained representatives will be on hand to tell you about: *Sustagen,* the only single food complete in all essential nutrients. It provides every nutrient that medical, surgical or poorly nourished patients need for nutritional maintenance and rehabilitation.

THE PURDUE FREDERICK CO., New York, N. Y. (Booths 19 and 20), will present *Pro-Bilagol*: Liquid cholecystokinetic for the therapy of biliary tract diseases. Contains d-glucitol and homatropine methylbromide. *Senokot*: Constipation corrective containing the concentrated total senna glycosides. *Senokap*: *Senokot* plus the stool softener, dioctyl sodium sulfosuccinate. *Senokot with Psyllium*: Adds the bulk effect of psyllium to *Senokot. Senobile*: Adds the activity of bile salts to Senokot.

A. H. ROBINS COMPANY, INC., Richmond, Va. (Booth 32). The cough "season" finds *Robitussin* and *Robitussin A-C* featured at their exhibit. The antitussive component is glyceryl guaiacolate which increases respiratory tract fluid almost 200 per cent. *Robitussin A-C* includes an antihistamine and codeine. Also shown are Robins' antirheumatic preparations *Pabalate* and *Pabalate-HC* (with hydrocortisone), the skeletal muscle relaxant *Robaxin*, the new antihistamine *Dimetane*, and *Allbee with C* (B-complex with ascorbic acid).

WILLIAM H. RORER, INC., Philadelphia, Pa. (Booth 14). *Maalox*, the pleasant tasting, nonconstipating antacid is spotlighted at their booth. Other product highlights are *Parepectolin*, a pleasant tasting antidiarrhetic for adults and children, *Fermalox*, a new low dosage tablet for iron deficiency, and *Probutylin*, an effective oral anesthetic for use in a wide range of indications. Representatives on hand will be glad to answer your questions about these and their other products.

SANDOZ PHARMACEUTICALS, Division of Sandoz Inc., Hanover, N. J. (Booth 33), cordially invite you to visit their dispaly of: *Belladenal* Space Tabs, a more effective sustained-action antispasmodic that can be adjusted to the needs of the patient. *Bellergal* Space Tabs, assures around the clock control of functional complaints (example—menopause symptoms) in the periphery where they originate. *BepHan* Space Tabs, new approach to prolonged maintenance of low gastric acidity. Their representative in attendance will gladly answer questions about these and their other products.

JOSEPH E. SEAGRAM & SONS, New York, N. Y. (Booth 25). *Congeners*: Meaning—Analysis. Congeners (fusel oil, aldehydes, acids, etc.) are compounds found in all alcoholic beverages that provide the taste, bouquet and color. In too high concentrations, however, they can cause undesirable after effects. This exhibit, based on analyses by Foster D. Snell, Inc., consulting chemists, shows how leading brands of various alcoholic beverage types differ in their congeneric concentration. Physicians who advise moderate drinking for some of their patients can be guided by these findings.

G. D. SEARLE & CO., Chicago, Ill., (Booth 12), cordially invite you to visit their booth where their representatives will be happy to answer any questions regarding their Products of Research. Featured will be *Enovid*, the synthetic steroid for treatment of various menstrual disorders; *Zanchol*, a new biliary abstergent; *Nilevar*, the new anabolic agent, and *Rolicton*, a new safe, non-mercurial oral diuretic. Also featured will be *Vallestril*, the new synthetic estrogen with extremely low incidence of side reactions; *Pro-Banthine*, the standard in anticholinergic therapy; and *Dramamine*, for the prevention and treatment of motion sickness and other nauseas.

SMITH KLINE & FRENCH LABORATORIES, Philadelphia, Pa. (Booth 31), will feature: 1. *Combid® Spansule®* sustained release capsules, combining an inherently long-acting anticholinergic and *Compazine®*, for b.i.d., 24-hour control of both the physical and physic factors in g.i. disorders; 2. *Darbid*, the inherently long-acting anticholinergic; and 3. *Prydonnal®* 'Spansule' capsules, for sustained, uninterrupted antispasmodic-antisecretory-sedative effect with a single dose q12h.

E. R. SQUIBB & SONS, New York, N. Y. (Booth 16), has long been a leader in development of new therapeutic agents for prevention and treatment of disease. The results of their diligent research are available to the Medical profession in new products or improvements in products already marketed. They will be pleased to present up-to-date information on these advances for your consideration.

WALLACE LABORATORIES, New Brunswick, N. J. (Booth 15), will exhibit their *Milpath*, their combination of *Miltown* and the anticholinergic drug for treating conditions such as gastric ulcers, ulcerative colitis, and so forth.

WYETH LABORATORIES, Philadelphia, Pa. (Booth 13), will feature *Aludrox® SA* (aluminum hydroxide gel with magnesium hydroxide, ambutonium bromide and butabarbital, Wyeth) combining *Aludrox* with the *new* anticholinergic, ambutonium bromide, and the intermediate-acting sedative, butabarbital. *Aludrox SA* offers complete ulcer therapy with a single, palatable medication. It is available in either suspension or tablet form. *Equanil®* (meprobamate, Wyeth) the unique antianxiety factor with marked muscle-relaxant properties, for treatment of tense and anxious patients as seen in general practice; also valuable as a relaxant for musculoskeletal and neuromuscular disorders.

VISIT THE EXHIBITS

MEXICO REGIONAL MEETING

FIRST SESSION

MONDAY MORNING, 27 OCTOBER 1958

10:00 A.M.

1. "Gastric Neoplasms in Mexico".

Speaker

DR. PEDRO RAMOS, Mexico, D.F.

10:20 A.M.
General Discussion

10:30 A.M.

2. "Amebiasis in Mexico".

Speaker

DR. GUILLERMO HARO Y PAZ, Mexico, D.F.

10:50 A.M.
General Discussion

11:00 A.M.

3. "Nonspecific Mesenteric Adenitis".

Speaker

DR. AARON LIEBERMAN, Mexico, D.F.

11:20 A.M.
General Discussion

11:30 A.M.

4. "The Value of Routine Proctosigmoidoscopy".

Speaker

DR. DALE W. CREEK, Santa Barbara, Calif.

11:50 A.M.
General Discussion

VISIT THE EXHIBITS

SECOND SESSION

MONDAY AFTERNOON, 27 OCTOBER 1958

2:00 P.M.

5. "Treatment of Hepatic Coma".

Speaker

DR. MARIO REBOLLEDO, Mexico, D.F.

2:20 P.M.
General Discussion

2:30 P.M.

6. "Results in 500 Operative Cholangiograms".

Speaker

DR. SAMUEL GUTIERREZ VASQUEZ, Mexico, D.F.

2:50 P.M.
General Discussion

3:00 P.M.

7. "Serous Choroiditis Associated with Amebiasis".

Speakers

DR. BERNARD FARFEL, Houston, Texas, and DR. GEORGE KOLODNY, Houston, Texas

3:20 P.M.
General Discussion

3:30 P.M.

8. "Unusual Salmonella Infections".

Speakers

DR. EARL U. SCHARFF, JR., Memphis, Tenn. and DR. ROBERT GOURLEY, Memphis, Tenn.

3:50 P.M.
General Discussion

VISIT THE EXHIBITS

ABSTRACTS FOR GASTROENTEROLOGISTS

ABSTRACT STAFF
JOSEPH R. VAN DYNE, *Chairman*

ABE ALPER
L. K. BEASLEY
ARNOLD L. BERGER
ABRAHAM BERNSTEIN
A. J. BRENNER
J. EDWARD BROWN
WALTER CANE
THEODORE COHEN
JOHN E. COX
CARL J. DEPRIZIO
IRVIN DEUTSCH
RALPH B. EICHHORN
I. H. EINSEL
HEINZ B. EISENSTADT
EZRA J. EPSTEIN
BERNARD FARFEL
BERNARD J. FICARRA
NORMAN FREUND
V. J. GALANTE
SAMUEL M. GILBERT
JULES D. GORDON
D. P. HALL
SAMUEL L. IMMERMAN
HANS J. JOSEPH
ARTHUR L. KASLOW
SOL KRONENBERG
PAUL LEDBETTER
ERNEST LEHMAN
WALTER LENTINO
LIONEL MARKS
PAUL MATLIN
JOHN M. MCMAHON
HERMAN MILLER
ZACH R. MORGAN
LOUIS K. MORGANSTEIN
HELMUTH NATHAN
JACOB A. RIESE
LOUIS A. ROSENBLUM
GLENN S. ROST
MORTON SCHWARTZ
SAUL A. SCHWARTZ
ARNOLD STANTON
STANLEY STARK
BERNARD STERN
ANTHONY M. SUSINNO
CHESTER S. SVIGALS
PAUL B. VAN DYKE
ROBERT E. VERDON
JOSEPH E. WALTHER
ALVIN D. YASUNA
ALEXANDER ZABIN

ESOPHAGUS

CANCER OF THE ESOPHAGUS: Ivan Goni Moreno and Juan A. Gil Marino. Am. J. Surg. 94:387 (Sept.), 1957.

The writers reported a series of 164 patients. One hundred ten patients were explored and 101 underwent resection. Three patients are surviving after five years, eight survived between three to five years and the majority less than two years.

The authors divide the esophagus in three sections for surgical management and the type of operative approach for each segment of the esophagus is described in detail. The authors do not find it feasible to perform palliative ultraresections in advanced cases because of the high mortality rate and poor results.

For general anesthesia they recommend flebonovocaine with small doses of pentothal-curare. Temporary tracheotomy is recommended for any patient with a past history of bronchial disturbance and bronchorrhea. The hemithorax is usually drained for three or four days in all cases.

CARL J. DEPRIZIO

STOMACH

KEROSENE POISONING, A STUDY OF 48 CASES: William D. McNally. J. M. A. Alabama 27:53 (Sept.), 1957.

Kerosene poisoning is more frequent in children in the South than any other poison. The author reports on 48 cases seen at the Mobile County Hospital. These are arranged in two groups: The first category is that of acute toxicity and depression of the central nervous system with minimal pulmonary changes. The second group is that of a severe pneumonia, hyperexia, and prolonged recovery. The major damage was pulmonary in origin from aspiration. Routine treatment in the emergency room consists of immediate gastric lavage with two ounces of mineral oil; another ounce is left in the stomach. This is omitted if the child has vomited or is not drowsy. 300,000 units of penicillin is given immediately and repeated every four hours until temperature is normal. Coramine or caffeine sodium benzoate is used in all cases of drowsiness or depression. Gross carelessness of parents in allowing the poison to remain in reach of small children is the chief incriminating factor in etiology.

JOHN M. MCMAHON

THE TREATMENT OF PERFORATED PEPTIC ULCER—IS A CHANGE DUE?: E. A. J. McKittrick and Burns Plewes. Canad. M. A. J. 77:565 (15 Sept.), 1957.

It has been suggested that the treatment of perforated peptic ulcer is either too conservative or too radical. Critics have suggested the opposing views of nonoperative treatment by nasogastric suction and support or immediate partial gastrectomy. A study of 100 consecutive cases of perforated ulcer admitted to the Toronto East General Hospital is outlined. Operative treatment was carried out in 93 per cent of the 100; 88 of these being within 24 hours of perforation. Of the 7 not operated on, 3 were moribund on admission and died and in another group of 4, more than 24 hours had elapsed since perforation. The latter were treated by suction and intravenous therapy. All 4 of the latter recovered. Five deaths occurred in the operative cases, all being patients over 50 years of age. The operative procedure was closure of the perforation by an omental graft to which a gastroenterostomy was added because pyloric obstruction seemed imminent. It was thought that all deaths were due to delay in diagnosis or in treatment. Further surgical treatment was necessary in 10 per cent and complications were noted in 20 per cent.

JOHN E. COX

INTESTINES

DUPLICATION OF THE ENTIRE COLON, BLADDER AND URETHRA WITH TWO SEPARATE UTERI: Yukako Kawamura and Takashi Toda. Nagoya Med. J. 3:121 (July), 1955.

This article describes surgical therapy for a congenital anomaly. It is interesting that the patient had to live to the age of 24 with the findings as described. Associated with the above anomalies, there was also a Meckel's diverticulum which was resected. This article with the description of the surgical technic is recommended to those interested in the study of congenital anomalies.

ABE ALPER

A PRACTICAL APPROACH TO THE TREATMENT AND DIAGNOSIS OF GASTROINTESTINAL HEMORRHAGE: Samuel Morrison. Maryland M. J. 6:380 (July), 1957.

For many years there has been a controversy as to whether a patient with a massive hemorrhage should be given transfusions. Some authors believe that the results with multiple transfusions are not as good as has been reputed. The author believes that at least 1,000 c.c. of blood and as much as 2,000 c.c. should be given. Beyond this amount he believes that it is not only hazardous because of transfusal reactions, but because of many other undesirable reactions. The decision to give transfusions depends upon the changes in hemoglobin, hematocrit, red cell count, blood pressure, pulse rate and perhaps urea nitrogen.

He mentions other factors to determine whether a patient is a medical or surgical one such as age factor, repeated or uncontrolled hemorrhage.

More recently there has been a trend toward early diagnosis, however, the author is not fully in agreement with this procedure in all cases.

As to surgery, he is of the opinion that when the stomach is exposed and when no area of bleeding is found, he believes that a subtotal gastrectomy should be done in spite of the lack of finding the bleeding origin. The author discusses the various causes of bleeding and differential diagnosis.

ZACH R. MORGAN

MECKEL'S DIVERTICULUM: A REPORT OF SIXTEEN CASES. Caesar F. Sarni. J. Internat. Coll. Surgeons 28: (July), 1957.

Meckel's diverticulum is a remnant of the obliterated vitelline duct of embryonic life. The proximal part of the duct, which enters the primitive gut, fails to become completely obliterated and forms this pouch.

The author reports 16 cases, 8 children and 8 adults. The diagnosis in 9 cases was acute appendicitis; 5 cases of ovarian cysts; 1 case of fibroid uterus and 1 case of right inguinal hernia. In each case a Meckel's diverticulum was discovered and excised.

Inversion should be avoided, because a purse-string suture forms a polypoid tumor in the small bowel, which may induce intussusception.

ABRAHAM BERNSTEIN

DETERMINATION OF 5-HYDROXYTRYPTAMINE, 5-HYDROXYINDOLE ACETIC ACID AND HISTAMINE IN THIRTY-THREE CASES OF CARCINOID TUMOR (ARGENTAFFINOMA): Bengt Pernow and Jan Waldenstrom. Am. J. Med. 23:16 (July), 1957.

The authors have made determinations of 5-hydroxytryptamine (5HT) in blood serum and urine and of 5-hydroxyindole acetic acid (5HIAA) in urine in 33 cases of abdominal carcinoid tumor. The cases were divided into two groups: 1. Twenty-two cases which were examined before operation or in which the tumor was not completely resected. The 5HT analyses showed increased values in blood and/or urine in 17 to 18 cases. Abnormally high 5HIAA values were obtained in 19 or 20 cases. 2. Eleven cases in which the tumor had been removed, probably *in toto*. In this group the 5HT and 5HIAA figures were normal or slightly increased. In eight cases in group 1, and in one "cancer" patient, the urinary excretion of histamine also was studied. In seven cases an increased excretion was found.

JOHN M. MCMAHON

THE INDENTURE SIGN IN ACUTE EXUDATIVE COLITIS: M. H. Poppel and S. L. Beranbaum. Am. J. Digest. Dis. 2:382-386 (July), 1957.

The indenture pattern is a defect characterized by numerous usually equal scallopings or indentations caused by swollen mucosal folds extending into the lumen and reducing its size. The defect has no sharp demarcation and the involved area gradually merges with the normal portions. The peaks or serrations are not ulcerations but represent barium extending in between the rather uniform swollen mucosal folds characteristic of acute exudative inflammation.

The indenture pattern is not specific for any disease entity and merely represents the acute exudative phase of colonic infection.

WALTER CANE

TREATMENT OF COMPLETE PROLAPSE OF THE RECTUM: E. S. R. Hughes, L. W. Gleadell and John Turner. Brit. M. J. 5038:179 (27 July), 1957.

Complete prolapse of the rectum occurs with a deep peritoneal sac anterior to the rectum plus a defective pelvic floor (muscle and fascia). The numerous procedures advocated point out the poor results obtained.

The authors' series of 30 patients contained 28 females and 2 males. The first 17 had a 2-team abdominoperineal operation. In 14, they also sutured the levatores together posterior to the rectum through a second incision into the presacral space. The abdominal surgeon, meanwhile, excised the invaginated sac and closed the pelvic peritoneal cavity by purse-string sutures.

There were no deaths. Follow-up was 15 months to 5¼ years, with 3 recurrences. Continence was adequate unless the stool was loose, and the anal sphincters showed an improved tone but not complete recovery.

The authors show that synchronous combined abdominoperineal operation or perineorrhaphy excision of the hernial sac and

closure of the pelvic space offers excellent results without requiring bowel resection or suspension from nearby rigid structures. An excellent review of other methods is discussed.

NORMAN L. FREUND

HEMANGIOMA OF THE COLON: Herbert M. Olnick, J. P. Woodhall, Jr. and Calder B. Clay, Jr. J. M. A. Georgia 46:383 (Aug.), 1957.

The authors present a case of bleeding from the anus in a 27-year old female due to a hemangioma in the right transverse colon. This is the third reported case diagnosed by x-ray which showed a narrowing and a great number of phleboliths in the right upper quadrant of the abdomen. To be considered in the x-ray differential diagnosis are tubercles and histoplasmin calcifications in the liver and spleen and placental calcification. The phleboliths in an hemangioma are due to calcified thrombosed veins. Other hemangiomata involving the skin or other organs may suggest the diagnosis which is usually confirmed by x-ray prior to surgery. Treatment is surgical being made mandatory by obstruction or bleeding.

ALEXANDER ZABIN

ACUTE INTRAPERITONEAL PERFORATIONS OF THE COLON AND RECTUM: Alastair A. Murray. Canad. M. A. J. 77:336 (15 Aug.), 1957.

Diverticulitis and carcinoma are the commonest causes of large bowel perforation. Steroid treated ulcerative colitis has also been a factor recently, and dysentery and trauma complete the etiology.

A careful history and a flat plate for free air are most important in reaching a correct diagnosis. The author stresses surgical intervention before a critical point of no return is reached. Broad spectrum antibiotics and electrolytes are given preoperatively. Operative procedures are discussed in 19 cases without a fatality. These consist of suture of perforation, exteriorization, resection, drainage, and proximal colostomy. Staged procedures are recommended for diverticulitis, and sometimes for carcinoma; colectomy and ileostomy for colitis.

Trauma is due to penetrating wounds of the abdomen, buttocks or perineum; intracolonic explosions during electro-fulguration; and to compressed air introduced per rectum. In these cases, primary suture may usually be done, with proximal colostomy and drainage.

NORMAN L. FREUND

HISTORY OF EXCISION OF THE RECTUM: R. P. Warren. Proc. Roy. Soc. Med. 50:599 (Aug.), 1957.

The history of the excision of the rectum commences in 1820 at which time there was no plan for this procedure and terminates properly in 1920 when the stage was set for what may be termed the modern era for this surgical operation.

The year 1920 is a date of note in the history of rectal surgery because by that year the abdominoperineal, the extended perineal and the perineoabdominal operations had all been evolved. Later years were to see improved results from these procedures as well as the synchronous combined excision and various other modifications. This paper is of particular interest to those amongst us who are medical historians.

BERNARD J. FICARRA

BENIGN STRICTURES OF THE COLON: Peter Boreham. Proc. Roy. Soc. Med. 50:601 (Aug.), 1957.

The author reports benign strictures of the colon found in the left end of the transverse colon, in the lower descending colon, and the rectosigmoid junction. These are locations where the colon normally has a small lumen. These strictures find their origin in inflammatory processes. The inflammation may be similar to regional colitis similar to Crohn's disease in the small bowel, tuberculosis of the bowel or colitis. X-ray studies of the patients demonstrate the lesion which can be confused with neo-

plasm. None of the x-rays however showed the pipe-like appearance of colitis.

The treatment depends upon the stage at which the disease may manifest itself. A complete obstruction may necessitate an emergency colostomy with a curative procedure at a later date. On the other hand a hemicolectomy may be necessary. Conservative therapy may prove beneficial in those patients whose obstructive symptoms subside with the subsidence of the inflammatory process.

BERNARD J. FICARRA

TRAUMATIC RETROPERITONEAL RUPTURE OF THE DUODENUM: Murray L. Johnson. Am. J. Surg. 94:251 (Aug.), 1957.

This is a good example of an unusual condition that is likely to occur with many types of abdominal trauma. There were few reports of this entity in the literature of North America, and these consisted mainly of isolated case reports. The mortality rate in published cases is dropping and at present is 20 per cent.

Accuracy of diagnosis for rupture of the retroperitoneal duodenum beyond an educated guess is possible, only if other objective signs can be elicited. Emphysema of the right perirenal area demonstrated by x-ray is obviously selectively diagnostic for this area, but is present only occasionally. The approach to the surgical indication should not be exploration with minimal signs, but rather careful observation with knowledge of the possibilities.

Prompt operation, recognition and treatment of the condition during exploratory surgery can give good results, even with associated severe injuries.

Five cases are presented, including one associated with acute appendicitis, and one associated with complete traumatic excision of the gallbladder. Four patients recovered, and there was one death in 24 hours.

CARL J. DEPRIZIO

EFFECT OF A GLUTEN-FREE DIET IN IDIOPATHIC STEATORRHEA: Alexander Brown. Brit. M. J. 5040:337 (10 Aug.), 1957.

It seems well established that children with defective fat absorption (celiacs) are affected unfavorably by wheat gluten, causing gluten-induced steatorrhea. Three cases of idiopathic steatorrhea are reported in which benefit was achieved by a gluten-free diet alone. Two were adolescents with steatorrhea of 8-10 years' duration. The third was a woman of 40 with steatorrhea of 8 years' duration. When the patients returned to a normal diet a return of symptoms became evident even after a 2 years' restriction of gluten. It seems very likely that the gluten restriction has to be permanent. The authors demonstrate the value of the exclusion of gluten from the diet in cases of idiopathic steatorrhea, and advise that it be tried in all cases irrespective of age and duration of symptoms.

ARNOLD STANTON

GASTROINTESTINAL MALABSORPTIVE SYNDROMES: Wade Volwiler, Am. J. Med. 23:250 (Aug.), 1957.

Malabsorption syndromes are most frequently caused by functional or organic small bowel disorders, but may also follow stomach operations as well as diseases of the liver, the bile ducts, and the pancreas. Defective fat absorption is the most striking abnormality, however, diarrhea may not be present.

The differential diagnosis of steatorrhea must include: 1. Status after gastric operations, 2. Pancreatic insufficiency due to fibrosis, pancreatitis, cancer, pancreatectomy, fistula and protein deficiency (Kwashiorkor), 3. Obstructive jaundice, 4. Severe hepatic diseases, 5. Small bowel resection, fistulas, shortcircuits, strictures, diverticula, 6. Mesenteric disease such as lymphoma, carcinoma, Whipple's disease, 7. Organic diseases of the small bowel mucosa, such as enteritis, tuberculosis, amyloid, scleroderma, neoplasm, 8. Functional disturbance of the small bowel mucosa in celiac disease, sprue, severe starvation, and with various diarrheal diseases.

Diagnosis of pancreatic steatorrhea requires absence of proteolytic and lipolytic

enzymes in the duodenal juice, absence of response to intravenous secretin and objective improvement of fat and nitrogen absorption after 8 to 30 gm. of pancreatin daily. Organic and functional small bowel disorders can frequently not be distinguished without surgical exploration. The x-ray deficiency pattern with dilatation, segmentation, scattering, thickening of folds, moulage sign, and abnormal motility does not correlate well with clinical and pathological findings. Treatment of malabsorption states varies with etiology, but restriction of fat intake, gluten-free diet, and administration of Vitamins K, D, B_{12}, B-complex, folic acid, iron, anticholinergics and steroids might give symptomatic relief. Pancreatic insufficiency might require up to 40 gm. of pancreatin daily.

H. B. EISENSTADT

SURGERY . . . AN EVALUATION OF THE MECHANISM AND TREATMENT OF COMPLETE RECTAL PROLAPSE: Norman D. Nigro and George L. Walker. Am. J. Med. Sc. 234:213-225 (Aug.), 1957.

Complete rectal prolapse is the subject of this article which will be of interest to internists and surgeons. Causative factors, definition and classification of the various types are considered.

Various operative procedures and combinations of these procedures to improve the adequacy of therapy are described. The authors point out that restoration of physiological function is to be considered before satisfactory results can be achieved.

BERNARD FARFEL

INTESTINAL OBSTRUCTION CAUSED BY SPONTANEOUS RUPTURE OF THE ILEUM WITH VOLVULUS DUE TO ABSCESS FORMATION: George Goldberg. J. Internat. Coll. Surgeons 28:134 (Aug.), 1957.

The author reports an unusual case of volvulus and torsion of the ileum with abscess formation. This was in a woman age 75, who entered the hospital complaining of severe abdominal pains of four days duration associated with vomiting. Patient had a history of previous surgery—four years prior to above incident patient had a vaginal hysterectomy, and three years prior an esophageal diverticulum was resected.

On this second admission patient appeared toxic and acutely ill. The mass in the abdomen kept increasing in size, and the author thought the patient had a carcinoma of the transverse colon which had ruptured and formed an abscess.

At surgery, a large abscess cavity was found containing a mass of bowel with a large perforation. The perforation was found in a loop of ileum which was gangrenous due to volvulus. Gangrenous bowel was resected, and end-to-end anastomosis performed. It is interesting to note that the mass in abdomen continued to grow for six months before patient had any severe complaints.

ABRAHAM BERNSTEIN

GASTROINTESTINAL HEMORRHAGE IN UREMIA: Raymond Scalettar, Milton E. Rubini and William H. Meroney. New England J. Med. 257:211 (1 Aug.), 1957.

The histories of two patients are reported who suffered from massive hematemeses during the course of uremia associated with lower nephron nephrosis. One patient developed renal failure after an alcoholic delirium, the other after a severe crush injury. In both persons, the gastrointestinal hemorrhage followed hemodialysis which was responsible for various coagulation defects. Nevertheless, the correction of the clotting disorder did not abolish the hemorrhage. The main cause of the gastrointestinal bleeding in the first patient was an acute gastric and an acute duodenal ulcer probably produced by ACTH therapy. The 2nd patient had a traumatic hiatus hernia which was ulcerated. The conclusion is reached that massive gastrointestinal hemorrhage during uremia is neither caused by blood dyscrasias nor by uremic gastroenterocolitis but by an associated localized disease of the gastrointestinal tract.

H. B. EISENSTADT

PRIMARY TORSION OF THE GREATER OMENTUM IN CHILDHOOD: P. Farrugia-Bonnici and H. B. Marsden. Brit. M. J. 5042:448 (24 Aug.), 1957.

Primary greater omentum torsion regarded chiefly an early adulthood disease was found in three children over the short period of 3 months.

Being indistinguishable from the picture of acute appendicitis this diagnosis should be considered in the differential lexicon of the acute belly, especially when on exploratory laparotomy the appendix appears uninvolved.

A. M. SUSINNO

POLYPOSIS OF GASTROINTESTINAL TRACT: THE PEUTZ SYNDROME: David Bailey. Brit. M. J. 5042:433 (24 Aug.), 1957.

The Peutz syndrome—multiple adenomata with melanosis of the oral cavity or the face is reviewed with four additional cases. Numerous articles have recently appeared in the American literature. This English report serves as a further reminder of the following features not yet widely appreciated:

1. Pigmentation has to be looked for specifically in many cases or else be overlooked.

2. Carcinomatous degeneration of the adenomata occurs in one of four cases and can just as likely be in the large as the small intestine.

3. The small intestine is found to contain adenomata in 100 per cent of the 67 cases taken from the literature.

4. Mendelian dominance, as yet incompletely deciphered accounts for the common occurrence in near relatives.

A. M. SUSINNO

TREATMENT OF IMPACTION OF FECES WITH AN ENEMA CONTAINING AN ENZYME: George C. Godfrey and Joseph M. Miller. U. S. Armed Forces M. J. 8:1131 (Aug.), 1957.

The authors discuss the treatment of fecal impaction of the rectum, and the difficulties encountered in certain cases, when the enemas are ineffective. They experimented with a number of enzymatic drugs given as enemas, in the hope that it would partially or completely disintegrate the scybalous stool.

Clinical trials were made on 12 patients with impacted feces, in whom the usual methods of treatment failed. These patients were given enemas of either 5.0 gm. of caroid, or 0.13 gm. of crystalline papain in 300 ml. of a warm, aqueous solution of 1:5,000 zephiran chloride. Following retention of the enema for one hour, 10 of the 12 patients had an effective bowel movement.

ZACH R. MORGAN

REDUNDANCY OF THE SIGMOID COLON: Peter Zanca. U. S. Armed Forces M. J. 8:1303 (Sept.), 1957.

In examinations of the colon, anomalous developmental conditions are encountered and these should be borne in mind before the diagnosis of a pathologic entity is entertained.

The author of this paper has pointed this out and included some anatomical landmarks (the intercristal line) which he feels are of value in distinguishing true redundancy of the sigmoid from Hirschsprung's disease. He also feels that colonic redundancy is an anatomical, physiologic variant, commonly found in the newborn but which persists in only a small percentage of full grown individuals.

IRVIN DEUTSCH

COEXISTENCE OF INTUSSUSCEPTION AND HENOCH'S PUPURA: I. D. Steinhardt and August F. Jonas. New England J. Med. 257:553 (19 Sept.), 1957.

Henoch's purpura and intussusception, which may occur as one of its complications, require diabolically opposed treatment. Whereas barium enema or surgery is

indicated in intussusception, similar treatment in simple Henoch's purpura may be harmful or even disastrous. Twenty-four cases of coexisting disease have been reported in the literature, the authors adding the twenty-fifth such case. Henoch's purpura is considered an acute immunologic perivasculitis of the walls of small vessels, of the *cutis corium*, capillaries of the synovia and renal glomeruli and the small vessels of the intestinal wall.

Intussusception in Henoch's purpura is caused by an intramural hematoma of the intestinal wall acting as a tumor and providing the leading point for peristaltic invagination. Of the 25 cases reported, no surgery was performed in 6, with 3 deaths. Twenty cases were operated upon (55 per cent resections) with a 20 per cent mortality. All postsurgical deaths occurred in the resected cases. This stresses the importance of early recognition of intussusception as a complication in Henoch's purpura. Delaying surgery until the bowel becomes gangrenous results in resection and increased mortality and morbidity.

A. J. Brennner

INTESTINAL POLYPOSIS: Harry E. Bacon, G. P. Giambalvo, Illydio Sauer, James P. Fleming and Guillermo Villalba. J. Internat. Coll. Surgeons 28:346 (Sept.), 1957.

Adenomatosis, whether of the diffuse familial or the disseminated nonfamilial variety, is a disease involving particularly the rectum and the colon and, on occasion, the entire gastrointestinal canal. The entity seemingly is due to a peculiar tendency toward mucosal hyperplastic proliferations, which frequently undergo malignant degeneration.

The authors are convinced that total colectomy, with excision of the rectum and permanent abdominal ileostomy, is the operation of choice. Their experience with ileostomy for these patients, as well as in cases of medically intractable ulcerative colitis, has been gratifying, as complete rehabilitation can be achieved with minimal difficulty.

Their experience encompasses 60 patients with adenomatosis of the large bowel. Of this number 40, or 66.6 per cent, disclosed evidence of malignant disease. The 40 cases are included in their total series of carcinoma of the large bowel, representing 1,663 cases, and incidence of 2.4 per cent.

Paul Matlin

SUPERIOR-MESENTERIC-ARTERY EMBOLECTOMY IN THE TREATMENT OF MASSIVE MESENTERIC INFARCTION: Robert S. Shaw and Robb H. Rutledge. New England J. Med. 257:595 (26 Sept.), 1957.

Mesenteric infarction from an embolus to a superior mesenteric artery is curable if circulation is restricted by embolectomy before irreversible bowel necrosis has taken place. The first survival after embolectomy is reported. Diagnosis and surgical intervention is indicated in cases of sudden severe pain in the mid abdomen with guaiac-positive stools, leucocytosis, and little or no gas in the bowel appearing on x-ray study. This is emphasized in patients with atrial fibrillation, recent myocardial infarction or previous arterial emboli.

It is essential to note the presence or absence of pulsation in the superior mesenteric artery rather than to rely on the color of the bowels for diagnosis. A second exploration 24 hours later is suggested if the viability of the bowel is in doubt.

John E. Cox

PNEUMATOSIS CYSTOIDES INTESTINALIS DIAGNOSED SIGMOIDOSCOPICALLY: Henry W. Pemberton and Colin B. Holman. Am. J. Surg. 94:472 (Sept.), 1957.

A case is reported of *pneumatosis cystoides intestinalis* in which the diagnosis was made sigmoidoscopically. The results of the review of the literature are presented. Only seven other instances exist in which such lesions of the lower part of the colon were evident by sigmoidoscopic examination. Six of these cases have been reported within the last two years. The writers noted that the disease is becoming more prevalent and more frequently recognized in the last two years.

Rectal bleeding without other symptoms was found in seven of the eight cases. The appearance of the lesions are described in detail, as well as the features noted by x-ray examination. The pathogenesis still remains obscure.

Conservative treatment was recommended. Many lesions disappear spontaneously. Complications are treated as they occur. Segmental resection of the bowel does not insure a cure and should be avoided unless absolutely necessary.

CARL J. DEPRIZIO

ADENOCARCINOMA OCCURRING IN REGIONAL JEJUNITIS: Peter Kornfeld, Leon Ginzburg and David Adlersberg. Am. J. Med. 23:493 (Sept.), 1957.

The authors present two cases of regional jejunitis in which a primary adenocarcinoma developed at the site of a stenosing jejunitis in the proximal jejunum. In both cases, the carcinoma had the character of a flat-based polypoid lesion. Although pseudopolypoid changes are less frequent in regional enteritis than in ulcerative colitis, it is conceivable that the jejunum, when involved by granulomatous inflammation, may represent a more susceptible area for carcinomatous transformation of inflammatory polyps than has hitherto been recognized. It is suggested that adenocarcinoma may be a complication of granulomatous jejunitis.

JOHN M. MCMAHON

GASTROINTESTINAL COMPLICATIONS OF STEROID THERAPY: Samuel Hyman and Frederick Steigmann. Quart. Bull. Northwestern Univ. M. School 31:213 (Fall), 1957.

The wide use of steroids in many diseases today predisposes to the complications and hazards of these therapeutic measures.

Three to 10 per cent of the population have peptic ulcers and the arthritics have a higher than normal ratio, hence extreme care should be used in introducing therapy with the steroids.

Two cases are illustrative of these complications of the drugs.

Stoppage of the steroids and strict ulcer therapy reversed the drug-induced pathology.

J. EDWARD BROWN

LIVER AND BILIARY TRACT

SIMULTANEOUS RADIOGRAPHY OF THE BILE DUCTS AND STOMACH IN CASES OF GASTRIC RESECTION: A. Aho and J. Apajalahti. Ann. med. int. Fenniae 46:25 (Jan.), 1957.

These authors have resorted to the intravenous use of biligrafin in studying the gallbladder and biliary passages as well as the residual stomach and the small intestine in those patients who have had gastric resection.

They describe vividly their method of investigation and report the results in 13 cases who were studied after a gastric resection. In these cases, no abnormality was noted in three; in five, there was hypermotility of the passage of bile into the duodenum; in two, the common bile duct was not properly visualized in connection with an extended, atonic, inflamed gallbladder; in one case, a hypertensive condition of the sphincter of Oddi was manifest; in another, fibrosis of the sphincter was obvious; and in another, the bile ducts were not properly visualized in connection with a subphrenic abscess. They conclude that complications after gastric resection are not infrequently of the nature of functional disorders of the bile ducts.

L. K. BEASLEY

CHOLEDOCHUS CYST: S. H. Taylor and G. Slaney. Brit. M. J. 5032:1401 (15 June), 1957.

Choledochus cyst is a rare congenital anomaly. The symptoms, including jaundice, are chiefly due to pressure on the biliary system and surrounding structures. The dilatation of the common bile duct often extends into the common hepatic duct, but the gallbaldder and cystic duct are usually of normal size. The terminal portion of the common duct is often narrowed, and sometimes cannot be found even when the obstruction is incomplete; gallstones may be present, and one case of carcinoma has been described.

SAMUEL L. IMMERMAN

VENO-OCCLUSIVE DISEASE OF LIVER IN AFRICAN CHILDREN: H. Stein. Brit. M. J. 5034:1496 (29 June), 1957.

The author describes three cases of veno-occlusive disease of the liver in African children. Previous reports have originated from Jamaica and predominantly in children from 1½ to 3 years of age. The children in this report were all less than 18 months of age, two in the acute phase of the disease and dying from intercurrent infection, and the third in a subacute phase and dying from a hematemesis

All three cases showed marked disturbances of liver function tests with inverted albumin globulin ratios, although clinical jaundice was not detectable.

The etiology of veno-occlusive disease of the liver is not known. In reported cases, while there is no evidence of frank malnutrition the dietary histories suggest nutritional deficiencies. In addition the possibility that toxic substances, such as witch-doctor's herbs, etc., are important etiologically cannot be excluded.

LOUIS A. ROSENBLUM

PRACTICAL OBSERVATIONS OF THE BILIARY TRACT WITH OPERATIVE CHOLANGIOGRAPHY AND CHOLOGRAFIN: Maurice D. Sachs. J. Internat. Coll. Surgeons 27:681 (June), 1957.

The author brings to mind the need for operative cholangiographic study of the biliary tract. Practical facts in the interpretation of the x-ray are emphasized with special reference to the diagnosis of a dysfunction of the sphincter of Oddi. Roentgen study of the biliary tract particularly by the operative, intravenous and oral methods can be of inestimable value to the surgeon. By careful attention to x-ray technic and cooperation between the roentgenologist and the surgeon important information can be obtained such as spasm, fibrosis, pancreatitis and tumor formation.

BERNARD J. FICARRA

THE SURGICAL SIGNIFICANCE OF THE INTERNAL ARCHITECTURE OF THE LIVER: Michael Hobsley. Proc. Roy. Soc. Med. 50:395 (June), 1957.

This paper presents a summary of the venous, arterial and biliary systems of the liver. The true plane of subdivision of the liver into equal halves is demarcated by the right and left Glissonian systems. This plane is to the right of the falciform ligiment and is well defined by obvious landmarks.

In applying this anatomy to surgery, it is important to pick sites of biopsy away from areas that may interrupt blood or biliary flow, thereby jeopardizing the viability of the liver distal to the site of biopsy.

If the Glissonian and hepatic vein pedicles of an area can be secured at the beginning of an operation, there is less risk of serious hemorrhage when performing lobectomies. If hemi-hepatectomy is performed, however, the central hepatic vein lies in the plane of section and cannot be tied without risk to the remaining half of the central segment of the liver.

Special mention is noted of the use of left lobectomy in order to secure a suitably dilated intrahepatic bile duct for anastamosis to the jejunum in cases of high common bile duct obstruction.

STANLEY STARK

PRACTICAL OBSERVATIONS OF THE BILIARY TRACT WITH OPERATIVE CHOLANGIOGRAPHY AND CHOLOGRAFIN: Maurice D. Sachs—J. Internat. Coll. Surgeons 27:(June), 1957.

Operative roentgen study is invaluable not only in the detection of calculi but in differentiation between pancreatitis and neoplasm, noncalculus obstruction, such as fibrosis of the sphincter of Oddi, and avoidance of unnecessary surgical intervention.

The author emphasizes the practical facts in x-ray interpretation and discusses the value of a Cholografin examination especially after cholecystectomy. The Cholografin method is not to supplant oral cholecystography. It is only to be used as a supplement when the gallbladder cannot be shown by the oral method.

Cholografin is demonstrable in the biliary radicles 10 to 15 minutes after its injection.

Careful team work between the radiologist and surgeon is important in order to obtain good results and perform the proper surgical procedures.

ABRAHAM BERNSTEIN

THE MANAGEMENT OF HEPATIC COMA IN RELATION TO PROTEIN WITHDRAWAL AND CERTAIN SPECIFIC MEASURES: W. H. J. Summerskill, Stanley J. Wolfe and Charles S. Davidson, Am. J. Med., 23:59 (July) 1957.

Sixty-four patients with hepatic coma were treated with various methods suggested for this disorder. About half of them received a protein-free diet consisting of Dexin by mouth, or 10-20 per cent glucose in fruit juice by slow intermittent intragastric drip. If necessary, carbohydrates were given intravenously as 40 per cent glucose solution through polyethylene tubing inserted into a large vein.

Tetracycline or chlortetracycline, 1-2 gm. daily, were administered concomitantly. Fecal nitrogen was removed by epsom salt orally and enemas. Whenever unequivocal improvement occurred 20 gm. of protein were added as Lonolac or whole milk. The other half of patients received 60 gm. of protein daily from the beginning of the treatment, antibiotics and enemas were not given. Both groups obtained supportive care in the form of intravenous fluids with electrolytes and vitamins. Harmful drugs were avoided, infections and hemorrhages were corrected. The first group of patients had a much higher percentage of survivers. Glutamic acid orally or sodium or potassium glutamate intravenously, sodium and potassium aspartate (Merck) intravenously, sodium lipoate (Lederle) intravenously, and cortisone were administered to both groups but gave no additional benefit.

H. B. EISENSTADT

PORTAL CIRCULATION IN CONSTRICTIVE PERICARDITIS: Vincente Gilsanz, Agustin Vergara and Louis Estella, A.M.A. Arch. Int. Med. 100:201-208, 1957.

Ascites resistant to conventional treatment is frequently found in constrictive pericarditis. It yields only to successful pericardiectomy. In order to elucidate the mechanism of this fluid accumulation two new tests were used in normal persons as well as cardiac patients: 1. serial splenoportography, which makes possible the visualization of the persistence of the contrast material in the portal circulation; 2. spleen-lung ether time, which is the time between injection of ether into the spleen through the same needle used for the administration of diadrast, and the appearance in the breath. The latter method is particularly valuable if compared with the conventional arm-lung ether time. Patients with pericardial effusion had normal values with both tests. Those with chronic hepatic congestion had a moderate slowing corresponding to the delayed circulation in other parts of the body. Those patients with constrictive pericarditis had a marked prolongation of the passage of diadrast as well as ether. In addition, the splenoportograms showed a great diminution of visualization of the fine intrahepatic portal channels that are well visualized in normal persons as well as in patients with the other cardiac diseases mentioned above.

H. B. EISENSTADT

THE CAUSE OF DEATH IN PATIENTS WITH LAENNEC'S CIRRHOSIS: J. Gordon Claypool, Mahlon Delp and T. K. Lin. Am. J. M. Sc. 234:56-61 (July), 1957.

The authors point out the importance of determining the cause of death in patients with Laennec's cirrhosis. This matter is becoming particularly important in view of the changing therapeutic approach including surgery, chemotherapeutic agents, and greater use of blood replacement. To evaluate better the effects of these procedures, the authors reviewed 2,314 cases of Laennec's cirrhosis in which the cause of death was given. They also reviewed 300 necropsies performed at the Queens General Hospital from 1936 to 1950 and reached the following conclusions.

Infection is a much more common cause than is noted clinically. Their series would indicate that liver failure and bleeding esophageal varices each accounted for 15 to 20 per cent of all deaths in patients with Laennec's cirrhosis. Infection was responsible for 25 to 30 per cent and miscellaneous complications, including cardiovascular and cerebral disease, accounted for the remaining 25 to 30 per cent of the fatalities. Apparently the aim of the authors was to furnish a base line from which conclusions can be drawn to determine the true value of therapeutic procedures.

BERNARD FARFEL

OBSERVATION OF CHLORPROMAZINE-INDUCED JAUNDICE WITH CONTINUED USE OF THE DRUG: Stanley J. Skromak, Charles J. Schreader, James F. O'Neill and Emmet F. Ciccone. Am. J. M. Sc. 234:85-90 (July), 1957.

This report of two well-documented cases of jaundice due to chlorpromazine therapy with continuation of administration of the drug points to the absence of any disturbing effect. If verified, it would make it possible to continue the drug where indicated. It has been reported by others that the readministration of chlorpromazine after jaundice has cleared will result in the recurrence of jaundice. In this particular report the clinical picture of jaundice cleared and did not recur despite the continued use of the drug. The authors suggest further corroboration before recommending the use of the drug after the induction of jaundice due to chlorpromazine.

BERNARD FARFEL

THE MANAGEMENT OF HEPATIC COMA IN RELATION TO PROTEIN WITHDRAWAL AND CERTAIN SPECIFIC MEASURES: W. H. J. Summerskill, Stanley J. Wolfe and Charles S. Davidson. Am. J. Med. 23:59 (July), 1957.

The response to treatment in 65 episodes of hepatic coma was studied in 63 patients. Thirty-four patients were treated with a regimen of protein withdrawal, oral broad spectrum antibiotics and enemas, which had the object of reducing the formation and absorption of toxic nitrogenous substances of intestinal origin. Twenty-one patients improved during treatment and 13 recovered. Of 30 patients who received varying amounts of protein during hepatic coma, five showed improvement and two survived, but the two groups were not entirely comparable. Additional therapy with glutamic acid, aspartic acid, cortisone, hydrocortisone or lipoic acid was given on 47 occasions, and no additional benefit could be attributed to the exhibition of these specific agents. It was concluded that the therapy of choice was protein withdrawal and oral administration of broad-spectrum antibiotics.

The majority of patients treated were alcoholic patients with severe liver disease, and hepatic function was the most important factor in prognosis.

JOHN M. MCMAHON

THE ASSOCIATION OF HEPATIC AND RENAL DISEASE: Alan S. Cohen, Heinz Valtin and K. G. Lowe. Scottish M. J. 2:277 (July), 1957.

The authors conclude that in its present usage there is no clinical etiological or pathological uniformity to constitute a clear cut so-called "hepatorenal syndrome"; not-

withstanding the fact that concomitant severe disease of these organs is seen most commonly in certain types of poisoning and infection and in severe acute disturbances of the general circulation.

L. K. Beasley

INCREASING PREVALENCE OF UNEXPLAINED LIVER NECROSIS: Joel G. Brunson, Philip L. Eckman and John B. Campbell. New England J. Med. 257:52 (11 July), 1957.

This is a statistical study of autopsy material from the autopsy and clinical records of 3,229 patients at the University of Minnesota Hospitals from 1946 through 1955. There has been a marked increase in the prevalence of hepatic necrosis, both in the pale type of localized necrosis and the confluent hemorrhagic type. The most striking increase occurred from 1953-1955. Excluding the usual causes of hepatic necrosis, there remained 62 cases of which 5 were associated with direct trauma, 6 with hepatic vascular occlusion. The remaining 51 showed no anatomic mechanism for the necrosis demonstrated. The authors feel the administration of the sympathomimetic amines may be an important factor in producing the increase in hepatic necrosis.

Abe Alper

THE HISTOLOGIC PICTURE OF THE LIVER IN SOME DERMATOVENEREOLOGIC CONDITIONS (LIVER BIOPSY STUDIES): G. C. Angela and A. A. Apra. Nagoya Med. J. 3:67 (July), 1955.

Twenty-five patients with various skin conditions were studied with liver biopsy. In only six cases was a normal histological picture found. In 19 cases liver biopsy revealed histologic changes from albumoid degeneration to fatty cirrhosis in 76 per cent of the cases. The most common alteration was steatosis. Liver function tests may be normal where hepatic damage is present.

Abe Alper

TRANSITION OF HEPATITIS INTO CIRRHOSIS: Hans Popper. Am. J. Digest. Dis. 2:397-404 (Aug.), 1957.

Multiple pathways exist between hepatitis and the disturbed lobular architecture of cirrhosis characterized by regenerative nodules and septa, namely, massive necrosis, periductular biliary fibrosis, and primary septum formation with and without fatty metamorphosis. Liver cell regeneration and necrosis, ductular cell reaction, alteration of intrahepatic blood flow, and inflammation which all seem to be precipitated and aggravated, e.g. by infection or hemorrhage, are important features. Whatever the etiology, the initial stage of the septum and nodule formation is sometimes a dramatic, florid disease clinically characterized by the manifestations of hepatocellular injury and insufficiency. Frequently it is insidious and then best recognized by liver biopsy.

Walter Cane

HEPATIC INVOLVEMENT IN INFECTIOUS MONONUCLEOSIS: Stanley Reichman, A. V. Burke and W. D. Davis, Jr. Am. J. Digest. Dis. 2:430-436 (Aug.), 1957.

A case of infectious mononucleosis complicated by hepatic involvement is reported. Serial liver biopsy studies revealed a lesion indistinguishable from viral hepatitis. The suggestion is made that, though mononucleosis hepatitis is milder than infectious hepatitis, the pathologic changes occurring in the liver in these diseases may be the same and differ only in extent depending solely upon the severity of the illness.

Walter Cane

PERFORATION OF GALLBLADDER DURING PREDNISONE TREATMENT: G. L. Mouzas and J. H. Briggs. Brit. M. J. 5042:450 (24 Aug.), 1957.

While gastrointestinal perforation in the course of steroid therapy has been extensively documented and reported, similar involvement of the gallbladder as found by the authors appears the first of its kind.

The association of amyloidosis and arthritis in this case report and the apparent need for intravenous hydrocortisone postoperatively are two of the additional interesting facets of this article.

A. M. SUSINNO

HEPATIC DYSFUNCTION DURING PROMAZINE THERAPY: Leo Waitzkin. New England J. Med. 257:276 (8 Aug.), 1957.

The early impairment of bromsulfalein excretion during promazine therapy was similar to findings in cases of early liver impairment during chlorpromazine therapy and in agreement with recently published data on liver function during chlorpromazine therapy.

This laboratory finding suggests that an impairment of hepatocellular function rather than a biliary obstructive process is the earliest form of liver involvement during treatment with these drugs.

JACOB A. RIESE

PEROPERATIVE CHOLANGIOGRAPHY AS A ROUTINE PROCEDURE IN BILIARY TRACT SURGERY: Saul Sakwa and Milton L. Sorock. J. Michigan M. Soc. 56:995 (Aug.), 1957.

Since the number of calculi found in common ducts increases with the number of common ducts explored, the authors have performed peroperative cholangiography as a routine part of gallbladder surgery in 37 cases. The danger is not in common duct exploration but in overlooking common duct stones. By their method of peroperative cholangiography the authors make an examination of the extrahepatic ducts with great accuracy and without exploration.

The authors report a series of 37 cases. In 7 of 15 cases who had intravenous cholangiography prior to surgery there was disagreement with the results found at operation. In 6 cases the peroperative cholangiogram showed obstruction of the dye at the duodenum. Exploration revealed calculi in four cases and carcinoma of the ampulla of Vater in the remaining two. The authors believe that peroperative cholangiography should be a routine procedure in all biliary tract surgery.

ARNOLD STANTON

VIRUS HEPATITIS WITH FEATURES OF PROLONGED BILE RETENTION: Stanley Shaldon and Sheila Sherlock. Brit. M. J. 5047:734 (28 Sept.), 1957.

Virus hepatitis, occasionally, takes on a "cholangitic" form, in which, after a febrile course of 4 to 6 weeks, symptoms subside, liver and spleen are no longer palpable, appetite returns, but jaundice deepens and remains for a mean period of about 13 weeks, often leading to a mistaken diagnosis of obstructive jaundice.

Biochemical findings are of little help as the urobilinogen returns to the urine at about the eighth week, the alkaline phosphatase returns to normal as the serum bilirubin falls, the flocculations tests do not show abnormality, the sedimentation rate is not altered and no anemia is present.

Biopsy in primary cirrhosis cases shows proliferative portal zone lesions.

Extrahepatic jaundice can be ruled out on the history; prodromal symptoms with development of jaundice, indicative of virus hepatitis, followed by return of appetite and a sense of well-being, but with retention of or deepening of the jaundice.

Even when there is doubt, surgical intervention is best delayed for a period of 6 or more weeks, because little is lost when the case is extrahepatic obstruction, but surgery can kill a patient with infective hepatitis.

J. EDWARD BROWN

PATHOLOGY AND LABORATORY RESEARCH

INVESTIGATION OF NONULCER DYSPEPSIA BY GASTRIC BIOPSY: A. Wynn Williams, Felicity Edwards, T. H. C. Lewis and N. F. Coghill. Brit. M. J. 5015:372 (16 Feb.), 1957.

Nonulcer dyspepsia is defined by the authors as being when abdominal or thoracic symptoms other than dysphagia occur in relation to eating. They exclude gastrointestinal, renal, cardiac or other extrinsic pathology as determined by the usual diagnostic aids including gastroscopy.

Using a modified Australian suction tube stomach biopsies were obtained and histological correlation was sought in 200 such hospital cases of presenting dyspepsia.

Because 45 per cent of these cases showed a normal mucosa and only 14.5 per cent chronic atrophic gastritis, the authors feel that interpretation of their results should be deferred.

However, the incidental data accumulated in the course of this study should interest most medical consultants if only to confirm previous clinical impressions: 40 per cent of all dyspepsias are due to duodenal or stomach ulcers; the incidence of either dyspepsia or of gastritis individually show no sex differences; atrophic gastritis becomes more common with advancing age; hydrochloric acid production on histamine stimulation decreases with the severity of gastritis.

A. M. Sussino

COPPER TRANSPORT AND EXCRETION IN NORMAL SUBJECTS AND IN PATIENTS WITH LAENNEC'S CIRRHOSIS AND WILSON'S DISEASE: A STUDY WITH CU^{64}: Wallace N. Jensen and Henry Kamin. J. Lab. and Clin. Med. 49:200 (Feb.), 1957.

Plasma radioactive copper transport was studied in four normal patients, three patients with Wilson's Disease, and two patients with Laennec's cirrhosis after oral administration of 1 mc. of CU^{64}. Measurements were made at intervals over a 60-hour period of the radiocopper concentration in whole plasma, the plasma globulin fraction, the plasma nonglobulin fraction, and the erythrocytes. Urinary and fecal excretions were also studied.

The data are in accord with previous studies on Wilson's disease which indicate an increase in copper absorption from the intestinal tract and, at least in certain cases, a decrease in elimination via the intestinal tract. In the patients with Wilson's disease the plasma nonglobulin-bound concentration was increased and the plasma globulin-bound fraction decreased. Consequent to the high plasma levels of the more easily dissociable copper nonglobulin complex, more copper may be available for tissue deposition and urinary excretion. In cirrhotics the plasma globulin-bound fraction was increased, possibly due to nonspecific binding by hyperglobulinemic plasma. Urinary excretion was closely correlated to the plasma nonglobulin concentration. Erythrocytes appear to be permeable to plasma copper. There were no marked differences in fecal excretion among the different groups.

Ernest Lehman

UROPEPSIN EXCRETION: S. J. Rosenberg. A.M.A. Arch. Int. Med. 100:937 (Dec.), 1957.

Uropepsin excretion values overlap considerably. Therefore, they have only a limited usefulness for the differential diagnosis. Uropepsin excretion is significantly elevated in peptic ulcer, in hepatitis, and tuberculosis of the lungs, and in nervous indigestion. On the other hand, it is normal or decreased in benign and malignant gastric neoplasms and in the stomach after vagotomy or partial gastric resection. Hyperpituitarism and hyperadrenocortism have a high output, while low excretion values accompany adrenal, pituitary, and other endocrine deficiencies. The values are 0 in per-

nicious anemia. For the differentiation of benign and malignant ulcer, only extremely high or low values would be important. For the differentiation of bleeding in chirrotic patients, low figures would speak for esophageal varicosities, while high values under these circumstances would indicate associated peptic ulcer.

H. B. EISENSTADT

HIGH KILOVOLT METHOD OF INVESTIGATION OF THE COLON AS A ROUTINE ROENTGENOLOGICAL PROCEDURE: Fred K. Wiedersen. Am. J. Roentgenol. 77:690 (Apr.), 1957.

In recent years, there has been continued improvement in the technic in methods of radiological diagnosis. High kilovoltage method is one means of investigation of the colon.

High kilovoltage technic allows the discovery of more and smaller polypoid lesions. It was recommended that the patients in whom a polypoid lesion was discovered by sigmoidoscopy should also have an x-ray examination. The multiplicity of these lesions have been established. Other indications of high kilovoltage technic are those of patients with rectal bleeding, patients with a polypoid lesion or carcinoma. The size and configuration of the polypoid lesions are of no criterion because the surgeon not infrequently has difficulty in finding small lesions. Palpation of the bowel may be totally inadequate and direct inspection of the open bowel may be necessary to localize the small lesion. The radiologist should be available to aid in the exact location of the polyp at the time of surgery.

V. J. GALANTE

EOSINOPHIL RESPONSE TO ADRENOCORTICAL STIMULATION IN PEPTIC ULCER DISEASE: Alvin J. Cummins, Michael L. Gompertz and Marie H. Jones. New England J. Med. 256:641 (4 Apr.), 1957.

The administration of coritsone and corticotrophin may produce, activate, or aggravate peptic ulceration because of acid and pepsin stimulation. Therefore, hyperadrenalism has been suspected to be involved in some way in the pathogenesis of ulcer. Previous investigations have shown a decreased eosinophil response of ulcer patients after injection of epinephrine or aqueous solution of ACTH, but these stimuli have recently been considered to be inadequate. Therefore, these tests were repeated on 30 ulcer patients, and the more reliable modification of the Thorn test with intramuscular ACTH-Gel was added. The response showed again an insufficient eosinophil depression with the old test, but a normal depression 12 hours after ACTH-Gel. Therefore, the conclusion is drawn that the old tests are unreliable and that the new more reliable method disproves any adrenocortical insufficiency of ulcer patients. However, additional investigations of the adrenal glands in ulcer patients would be desirable.

H. B. EISENSTADT

EVALUATION OF PANCREATIC EXOCRINE FUNCTION AND INTESTINAL ABSORPTION WITH RADIOACTIVE FAT: Richard P. Spencer, Charles R. Henkelmann and E. Richard King. U. S. Armed Forces M. J. 8:668 (May), 1957.

A simplified test using fat tagged with radioiodine as olein-I^{131} in the evaluation of a deficiency of pancreatic exocrine function or errors in alimentary absorption is described. The test is readily performed, inexpensive and does not require hospitalizing the patient. It does not even require determination of I^{131} levels.

An increased stool excretion of tagged fat was also observed in a postgastrectomy patient and so the possibility of fat absorption by the stomach, long a controversial argument is again revived perhaps with renewed interest.

A. M. SUSINNO

BOOK REVIEWS FOR GASTROENTEROLOGISTS

REGULATION AND MODE OF ACTION OF THYROID HORMONES—CIBA FOUNDATION: G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch. and Elaine C. P. Millar, A.H.-W.C., A.R.I.C., Editors for Ciba Foundation. 309 pages, illustrated. Little, Brown and Company, Boston, Mass., 1957. Price $8.50.

A highly scientific collection of essays dealing with the study of "Regulation and Mode of Action of Thyroid Hormones" under the auspices of the Ciba Foundation. As in the previous Ciba Foundation volumes, the contributors to this volume are men from the various learned centers of research. Although a specialized subject, the thyroid gland is a very important organ in the human body. Many of its functions, its action in health and disease make interesting reading. Physicians, research and laboratory workers will find useful information on the mode of action of thyroid hormones.

SURGICAL TREATMENT OF ULCERATIVE COLITIS: E. Delannoy and M. Martinot. 120 pages with 26 illustrations. Masson & Co., Paris, 1957. Fr. 1,400.00.

Ulcerative colitis is called in French: "La recto-colite ulcero-hemorragique". Its frequency and severity, which has become greater in France, without reaching the statistical frequency of the Anglo-American figures, poses a problem for the surgical treatment which is often very difficult. The medical treatment in these cases, both the acute and the chronic ones, are very often without effect, and, therefore, the surgeon, at an early stage, becomes interested in the operative treatment of this disease. Without neglecting the important contributions of the reports in English, it brings the results and conclusions of the experiences of Delannoy and Martinot, which is one of the most important ones in France.

The decision to operate is a difficult one and should take into consideration the severity of the clinical and biological picture and their complications, such as bleeding and perforation.

The authors discuss the various surgical procedures and their after-effects. One chapter is devoted to conditions after ileostomy.

The book is written in French with good illustrations and an extensive bibliography. It can be recommended to surgeons and gastroenterologists alike.

DUODENUM AND PANCREAS: Guy Albot and F. Poilleux. Actualites hepato-gastroenterologiquea de l'Hotel Dieu. 1956. Masson and Co., Paris, 1957.

The latest volume of the Actualités Hepato-gastroenterologiques from l'Hôtel Dieu in Paris has been published. This series of publications was started in 1952 and has been issued one volume each year. It represents the essence of the conferences of this well-known hospital in conjunction with gastroenterologists, surgeons, radiologists and biologists. This type of conference has been adopted by other hospitals; however, through the constant efforts of Guy Albot and F. Poilleux, these publications have become intimately connected with the Société Nationale Française de Gastroenterologie.

Each of these volumes covers one specific part in gastroenterology. The topic is at first discussed by some outstanding physician and it is followed by case presentations in relation to the discussed question. This year's volume (series of 1956), starts with the presentation by René Gutman on tumors of the duodenum, followed by an article by two famous surgeons, P. Hillemand and R. Soupault, on megaduodenum, and tumors of the ampulla of Vater. The next chapter: Spasms of the duodenum and the synergy of duodenum and biliary tract, is presented by Guy Albot and Poilleux and Kapandji. Other topics, which, just by mentioning will certainly interest many of our readers are: the duodenum after gastric operations, modern methods for exploration of the pancreas, lithiasis of the Wirsung duct and the pancreas, chronic pancreatitis and cysts of this organ. Besides, there is a

chapter by Poilleux, Bricaire and Tourneur on the syndrome of hypoglycemias.

We welcome this book which is so highly interesting and gives us an account of the high standard of l'Hôtel Dieu in Paris and its outstanding staff. The reproductions and the tables are very instructive. Written in French, it will be widely read by all those interested in gastroenterology.

PSYCHOSOMATIC MEDICINE—A CLINICAL STUDY OF PSYCHOPHYSIOLOGIC REACTIONS: Edward Weiss, M.D., Professor of Clinical Medicine, Temple University Medical Center, Philadelphia, Pa. and O. Spurgeon English, M.D., Professor and Head of Department of Psychiatry, Temple University Medical Center, Philadelphia, Pa. Third Edition. 557 pages, illustrated. W. B. Saunders Company, Philadelphia, Pa., 1957. Price $10.50.

The third edition of Weiss and English has been brought up to date. The authors recommend that the physician should read the first two and the last four chapters. He will be well repaid and able to successfully diagnose and/or treat various psychosomatic conditions.

The reviewer begs to differ with the authors, in that unless the physician reads chapter after chapter, he will miss the important suggestions as to diagnosis and treatment. The history, symptoms, etc., in given cases, although rather hard on the eyes because of the small type, adds to the value of the text and when a similar case comes under the physician's care, he will undoubtedly be aided in making a clear cut diagnosis and suggest appropriate treatment.

No wonder that this excellent text has been translated into Spanish, Portuguese, Italian and French.

GASTROINTESTINAL OBSTRUCTION: Meyer O. Cantor, M.D. and Roland P. Reynolds, M.D., with contributions by Clifford D. Benson, M.D., Robert E. Berry, M.D. and William A. Hudson, M.D. 565 pages, illustrated. The Williams & Wilkins Co., Baltimore, Md., 1957. Price $18.00.

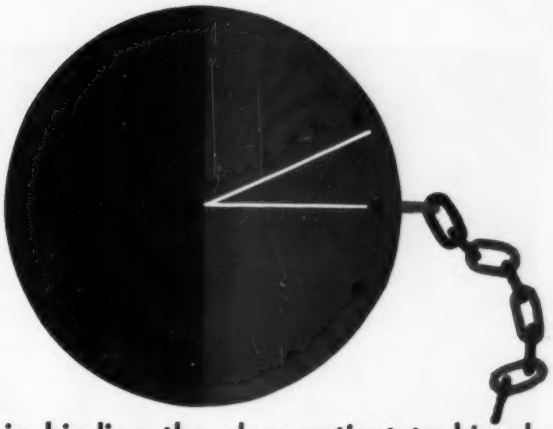
In 29 chapters, Dr. Cantor and his contributors have written an invaluable monograph on "Gastrointestinal Obstruction, Its Diagnosis and Treatment". The authors call attention to the time element before an operation is done, otherwise too long a delay may prove fatal. Dehydration, electrolyte imbalance and restoration of blood volume should be corrected, intestinal distention should be overcome or mitigated by the use of the long intestinal decompression tube.

It would require a great deal of space to describe the contents of this instructive volume, however, the reviewer feels that he gained a good deal of new knowledge in reading Dr. Cantor's "Gastrointestinal Obstruction" and recommends it highly as an essential part of all physicians' libraries.

ANGIOGRAPHIE DER NIEREN: Erich Vogler, Univ.-Dozent Dr. Med. Univ. and Rudolf Herbst, A.O., Univ.-Prof. Dr. Med. Univ., with a foreword by Anton Leb, Hofrat Univ.-Prof. Dr. Med. Univ. 112 pages, 182 illustrations. Georg Thieme Verlag, Stuttgart, Germany, 1958. Price $12.85.

Urologists and roentgenologists should by all means procure this extensively illustrated book depicting the arterial system of the kidneys. Combined with retrograde pyelography, angiography is a valuable means of studying normal and abnormal states of these organs.

Although written in German, the illustrations are sufficiently interesting and instructive. An extensive reference of the urological literature is included.



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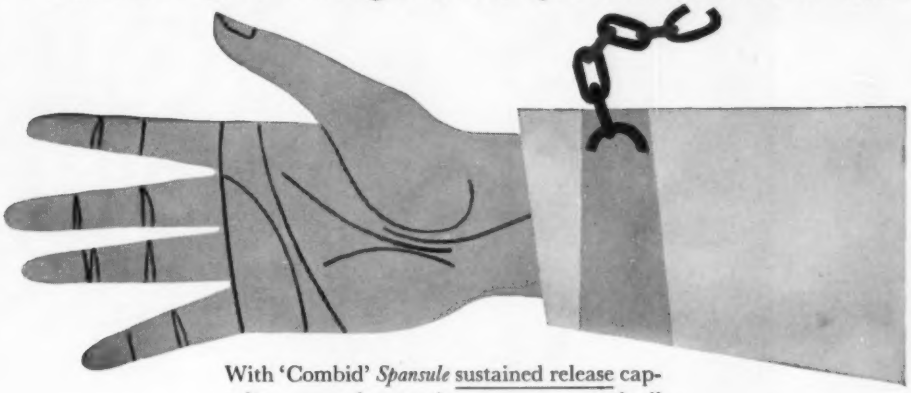

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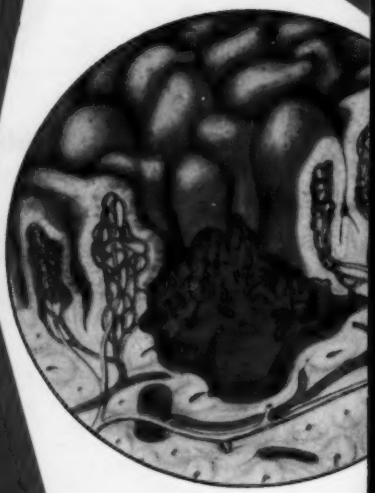

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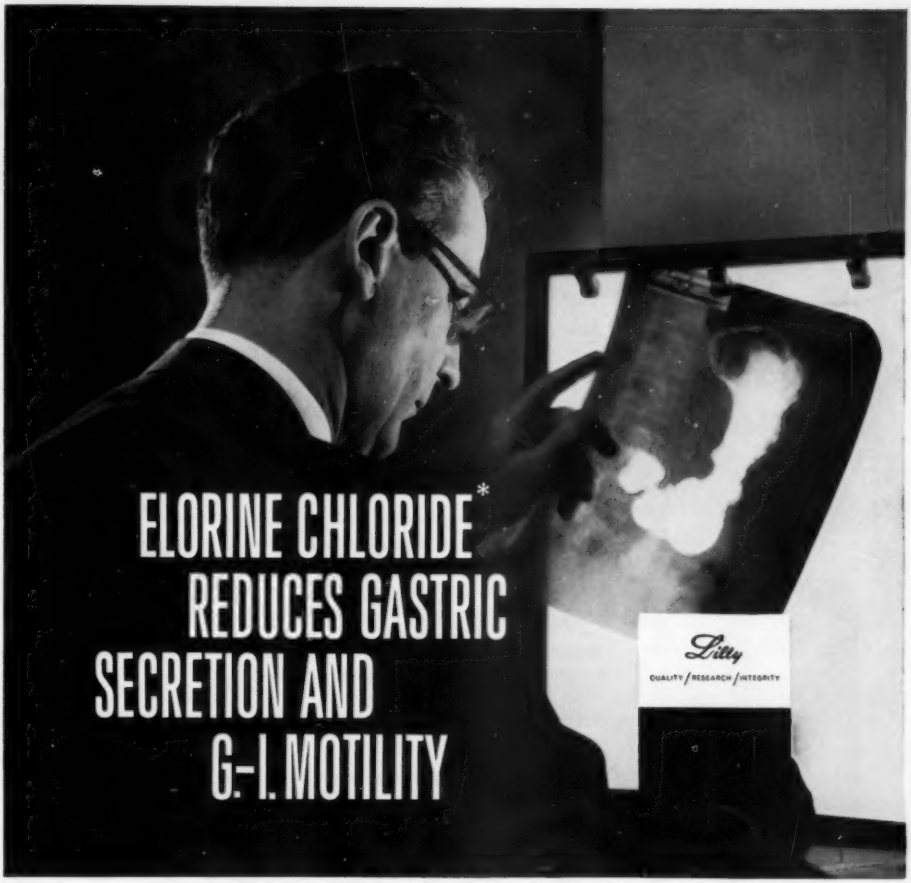

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1. Sun, D. C. H., and Shay, H.: A.M.A. Arch. Int. Med., 97:442, 1956.

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ULCER THERAPY

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IN ADRENOGENITAL SYNDROME
- good results with Medrol with no deleterious reactions[11]

IN BLOOD DYSCRASIAS
the chemical superiority of Medrol brings about
- full temporary remissions in a number of patients with acute leukemia[10]
- striking clinical improvement in all patients with chronic lymphocytic leukemia[10]

IN OPHTHALMIC DISORDERS
the molecular difference of Medrol results in
- superior effectiveness and safety in ocular allergies, acute and chronic uveitis, and other disorders of the posterior segment[9]

IN ALLERGIC DISORDERS
this corticoid effectiveness of Medrol leads to
- superior results in 9 out of 10 patients[3]
- lowest incidence of side effects on record (about 4%)[3]

IN DERMATOSES
Medrol's distinctive formula achieves
- major improvement in the majority of even resistant cases[4]
- markedly shortened treatment period[7]
- drastic reduction in incidence and severity of side effects[7,8]

IN RHEUMATOID ARTHRITIS
Medrol's chemical distinction is reflected in
- good to excellent results in nearly all cases[4,5]
- frequent functional reclassifications, up to complete remission[4,5]
- fewer and milder side effects than with any other corticoid[6]

THE CORTICOSTEROID THAT HITS THE **DISEASE**, BUT SPARES THE **PATIENT**

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1. "... the C_6-methyl group is similar to the $\Delta^{1,2}$ function as it leads to simultaneous enhancement of glucocorticoid activity and to a decrease in sodium-retaining activity."
– Lipsett, M. B., and Bergenstal, D. M.: Clin. Res. 6:255, 1958.
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THE MECHANISM OF SEASONAL POLLINOSIS

1. THE EXPOSURE

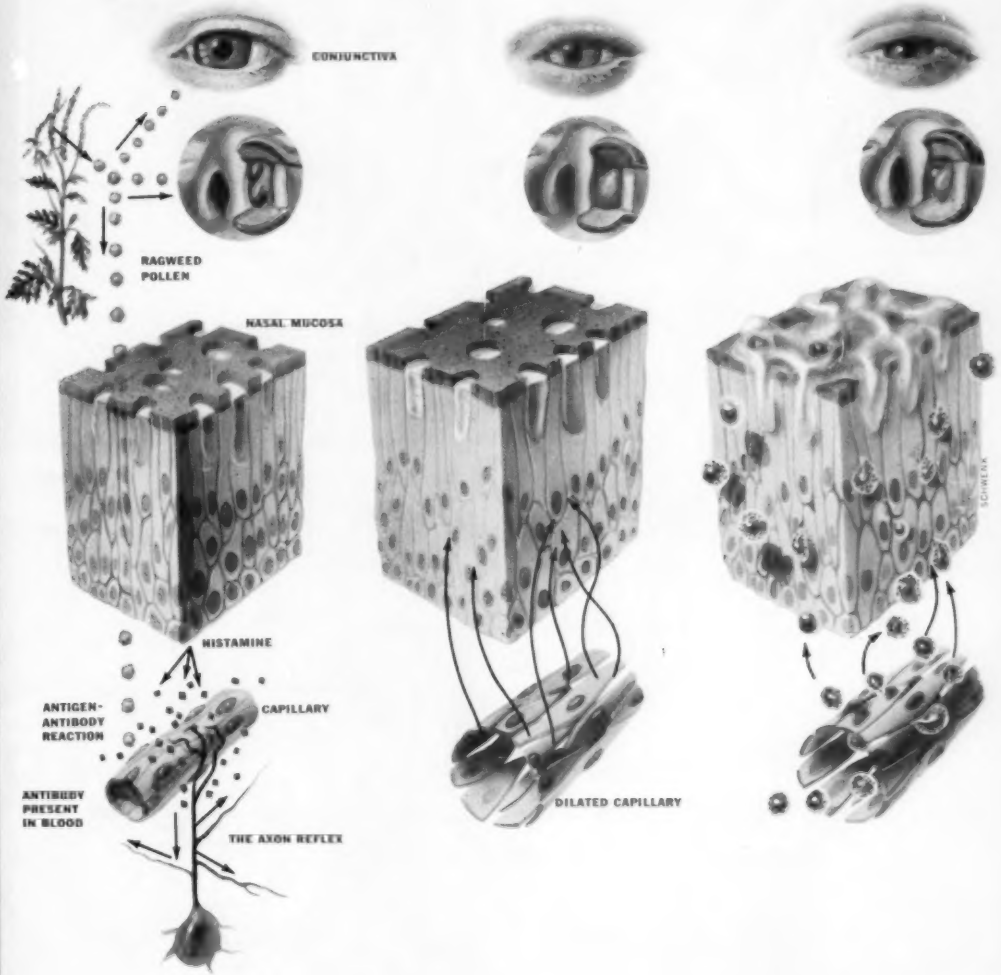
Pollen, after entering blood stream of the allergic patient, initiates the antigen-antibody reaction, with resulting release of histamine. Axon and collateral axons extend local reaction to wider areas of mucosa in the **axon reflex**.

2. THE IMMEDIATE REACTION

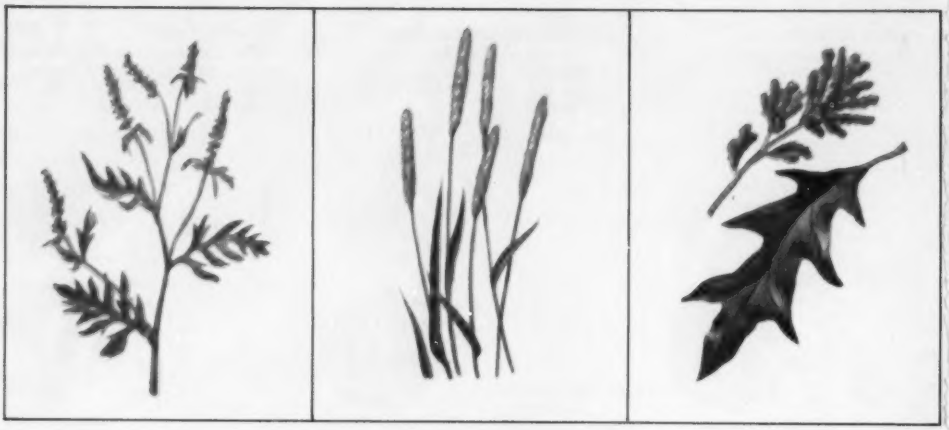
Capillaries and venules dilate, causing **erythema**. Enlarged intercellular interstices of vessel allow exudation of serum and **edema**.

3. CONTINUATION

Continued exposure to the allergen with the concomitant antigen-antibody reaction increases mucus secretion and causes transmigration of eosinophiles.



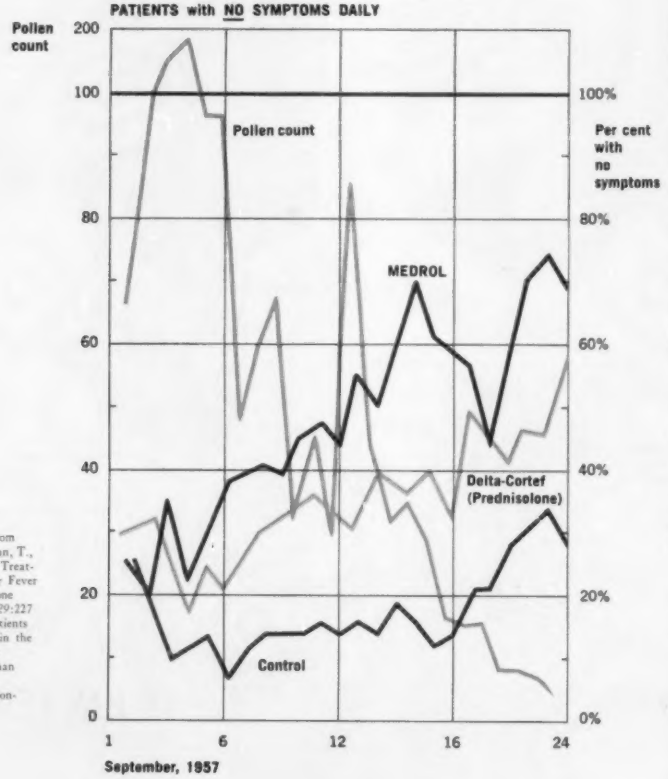
IN HAY FEVER Medrol



Some of the most common causative factors in hay fever are pollens of the **short ragweed, timothy grass,** and **pin oak.**

MORE SYMPTOM-FREE DAYS WITH MEDROL

PATIENTS with NO SYMPTOMS DAILY



Based on the chart from Brown, E. B.; Seideman, T., and Seigelaub, A. B.: Treatment of Ragweed Hay Fever with Methylprednisolone (Medrol), J. Allergy *29*:227 (May) 1958. More patients remain symptom-free in the midst of the hay fever season with Medrol than with equal doses of prednisolone or with non-steroid medication.

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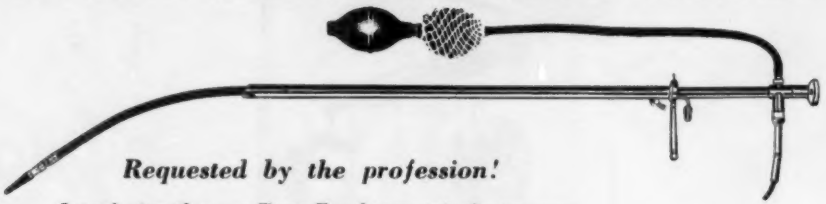

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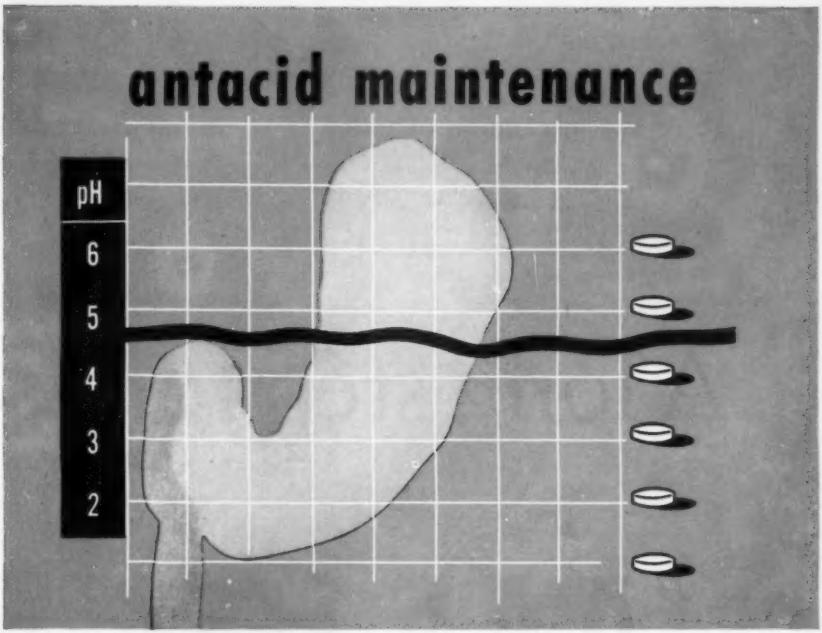

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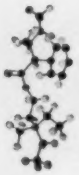
three-way mechanism of action  in one molecule

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"MUREL" is the newest development of research in quaternary ammonium compounds. It advances today's therapy of G.U., G.I. and biliary tract spasm toward the ideal in decisive relief without intolerance or drug-induced complications. "MUREL" also supplements peptic ulcer therapy by breaking the chain reaction of spasm-pain.

Dosage: Mild to moderate cases: initially, 1 or 2 tablets four times daily. Acute or severe cases: 1 to 2 cc. (10-20 mg.) intravenously or intramuscularly every four to six hours up to maximum of 60 mg. in 24 hour period. The higher dosage range is usually required in spasm of G.U. and biliary tract.

Supplied: "MUREL" Tablets—10 mg. Valethamate bromide, bottles of 100 and 1,000. "MUREL" Injectable—10 mg. per cc., vials of 5 cc. (Also available: "MUREL" with Phenobarbital Tablets—10 mg. Valethamate bromide with ¼ gr. phenobarbital per tablet, bottles of 100 and 1,000.)

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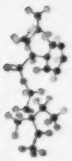
in therapy of

SPASM



Three-Way Mechanism of Action in One Molecule

"MUREL" unites three mechanisms specific for smooth muscle spasmolysis: (1) anticholinergic inhibition of parasympathetic transmission, (2) musculotropic action with specific affinity for smooth muscle fibers, and (3) ganglionic blocking action at the synaptic level.

Precludes or Minimizes Untoward Side Effects

"MUREL" is especially well tolerated because: (1) coordination of the three component actions permits significantly low dosages and also reduces reaction potential of any one mechanism, (2) a natural specificity confines the anticholinergic action to the effector cells of smooth muscle, (3) definite but transient ganglionic blocking action eliminates undesirable parasympathetic disturbances, (4) rapid detoxification and excretion prevent cumulative effect.

Widely Useful— Clinically Demonstrated

"MUREL" extends the clinical scope of dependable spasmolytic therapy, with indications ranging from mild to severe hypertonicity. In postoperative *genitourinary* spasm, cystitis and pyelitis—effective relief of pain and spasm was noted in all of 75 patients.[1] In *peptic ulcer*—complete or substantial relief from the pain/spasm cycle was reported in 119 out of 127 patients.[2,3] In *biliary spasm* and chronic cholecystopathies with or without stones—prompt, complete control of spasm was obtained in 20 out of 22 patients.[3]

Peiser[2] states that even extremely strong convulsive abdominal pain and violent vomiting could be eliminated or substantially improved, and no unpleasant side effects or toxic reactions were noted at any time.

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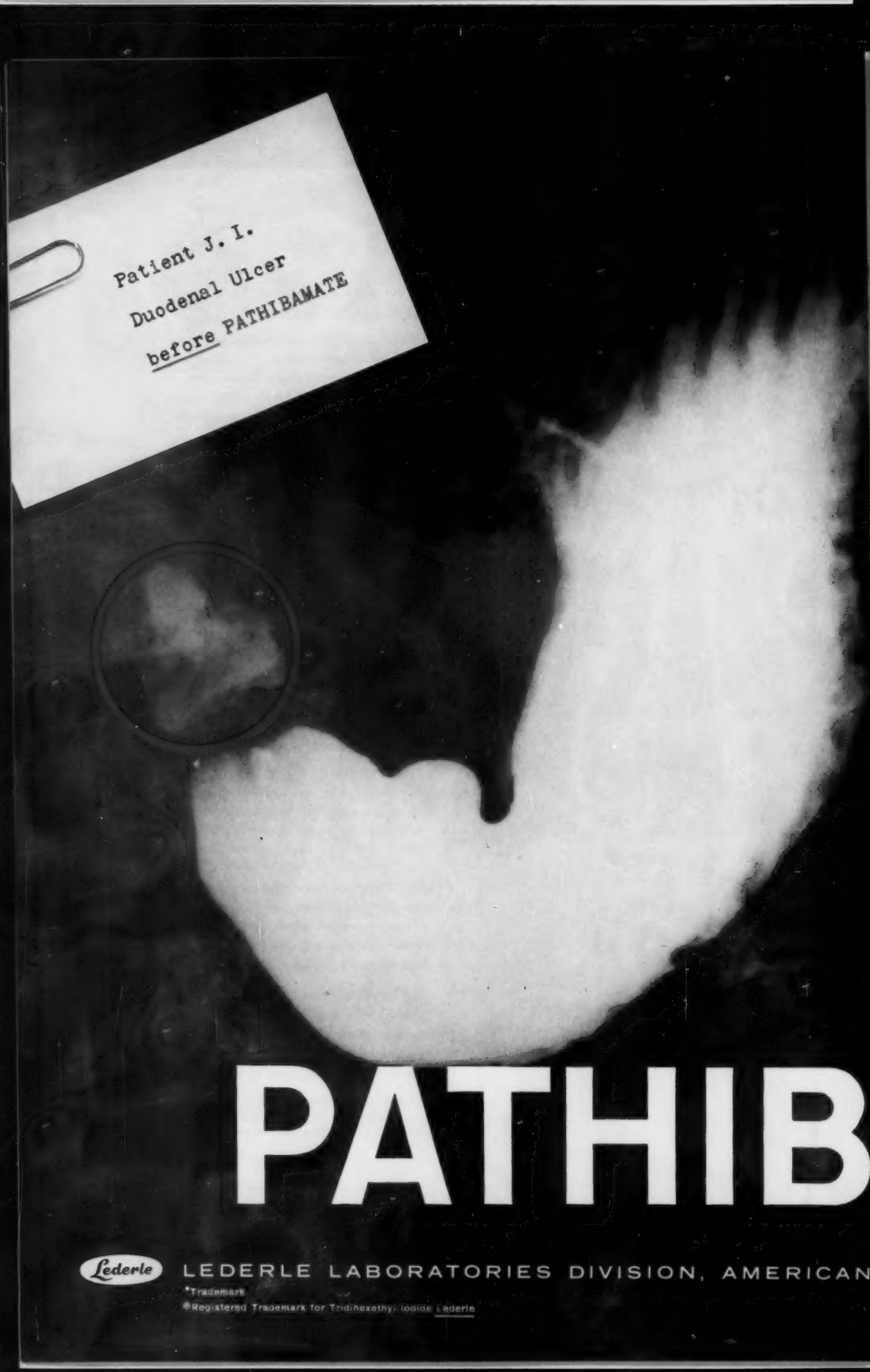
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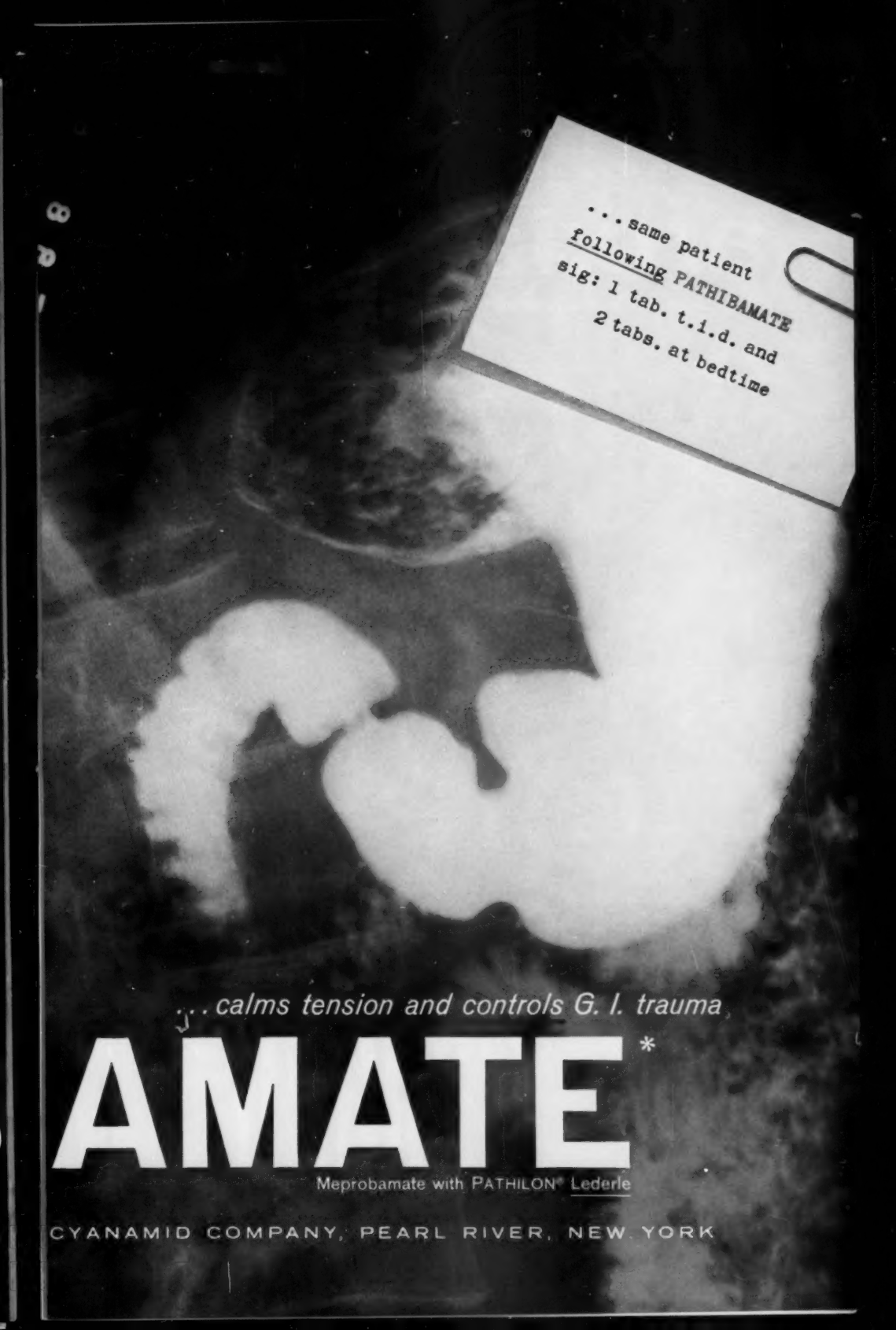
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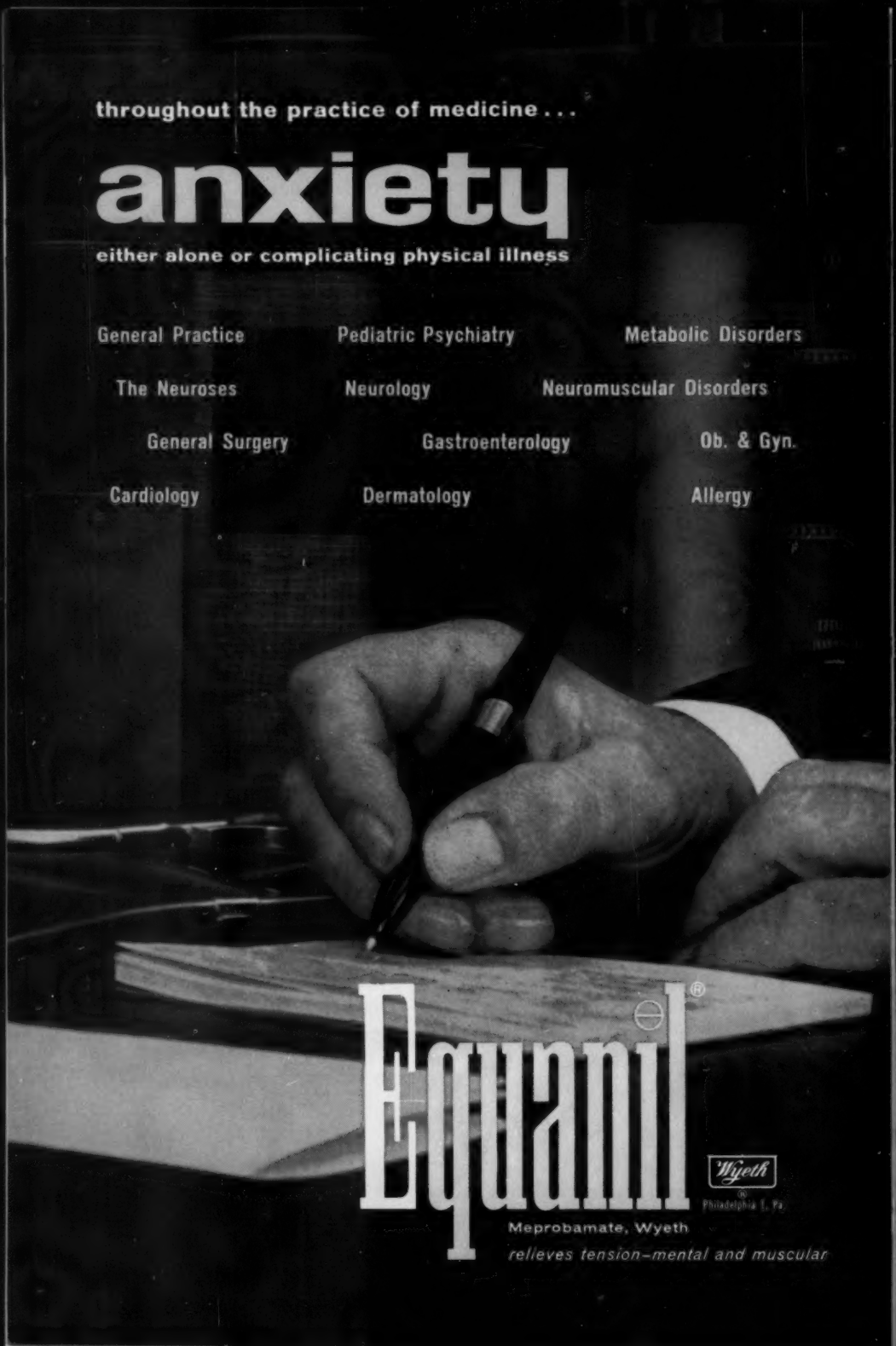
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L. A. FORMULA is a vegetable concentrate of naturally occurring hemicelluloses. It is derived from blond psyllium seed by our special Ultra-Pulverization Process and simultaneously dispersed in lactose and dextrose. It provides just the moist, smooth, effective bulk so essential to normal peristalsis.

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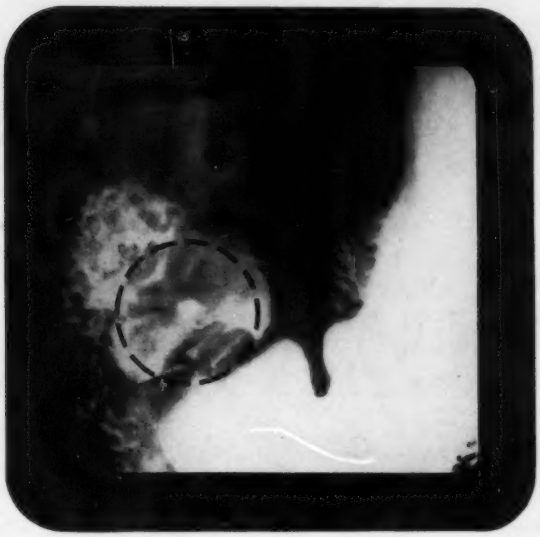
in the management of duodenal ulcer



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